Note remarks

Test sheet

Edition : 27.03.92 : 02.92 Replaces : ISO-4113 Test oil

: 0 402 640 837 Combination no.

Injection pump

Pump designation : PE12P120A320LS7807

: 0 412 620 806 EP type number

Governor

Governor design. : RQ400/1065PA1024 : 0 421 801 634 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M 444 LA

: 485.0 1st version kW : 2130 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00

: 12- 1- 5- 9- 8- 3-4- 11- 10- 2- 6- 7 Firing order

: 0-45-60-105-120-165-Phasing

180-225-240-285-300-

345

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm: 1065

Rack travel in mm : 13.90...14.00

Del.quantity cm3/: 21.1...21.3

100 s: (20.8...21.6)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 400.02nd speed

Rack travel in mm: 4.8...5.4 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1065 Speed Aneroid pressure h: 1000

Del.quantity : 271.0...216.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Speed Rack travel in mm: 20.0 Testing: 1st rack travel in: 12.90 rpm : 1110...1125 Speed 2nd rack travel in: 4.00 rpm : 1210...1240 Speed 4th rack travel in: 1300 rom : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring : 400 man Rack travel in mm: 5.1 Testing: rpm : 300 Speed Minimum rack trave: 6.90 rpm : 400 Speed Rack travel in mm : 4.80...5.40 Rack travel in mm : 2.00 Speed rom : 460...500 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rom hPa : -Pressure : 10.80...11.10 Rack travel mm Measurement $1/\min : 600$ Speed 1st pressure hPa : 350 Rack travel in m: 11.50...11.70 2nd pressure hPa : 500 Rack travel in m: 12.80...13.00 START CUT-OUT 1/min: 320 (340) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 600 Speed Del.quantity cm3/: 205.0...209.0 1000 s: (202.0...212.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm_ : 500 Speed Del.quantity cm3/: 144.0...146.0

1000 s: (141.0...149.0)

cm3 : 8.00 1000 s: (12.0) Spread BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.90 rpm : 1110...1125 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 210.0...230.0 1000 s: (206.0...234.0) Remarks: APPLICATION Rail car

Note remarks

: MB 9,6 q 1 : 20.03.92 Test sheet Edition : 02.92 Replaces : ISO-4113 Test oil

Combination no. : 0 402 646 940

Injection pump

Pump designation : PE6P120A320LS7836 EP type number : **0** 412 626 840

Governor

Governor design. : RQ300/950PA971-7 : 0 421 801 580 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M401 LA Engine

: 200.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina .

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 075 Test Lines

Outside diameter x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65) Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 12.40...12.60

Del.quantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 5.3...5.9 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6 Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 800

Del.quantity : 182.0...184.0 1000 : (179.0...187.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm Rack travel in mm : 20.0 Testing: 1st rack travel in: 12.10 Speed rpm : 990...1005 2nd rack travel in: 4.00 Speed rpm : 1065...1095 4th rack travel in: 1200 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 5.6 Testing: Speed : 200 rpm Minimum rack trave: 7.40 rpm : 300Speed Rack travel in mm : 5.30...5.90 Rack travel in mm : 2.00 : 370...410 Speed rom Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm hPa : 800 Pressure : 12.40...12.60 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 10.90...11.10 2nd pressure hPa : 400 Rack travel in m: 11.80...12.00 3rd pressure hPa : 1000 Rack travel in m: 12.60...12.80 4th pressure hPa : 1150 Rack travel in m: 12.90...13.10 5th pressure hPa : -Rack travel in m: 10.30...10.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 Speed rpm : 950 Del.quantity cm3/ : 203.0...206.0 1000 s: (200.0...209.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1400 : 800 rpm Speed Del.quantity cm3/: 202.0...206.0 1000 s: (199.0...209.0) Spread cm3: 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 134.0...136.0 1000 s: (131.0...139.0) Spread cm3: 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.10 Speed rpm : 990...1005

STARTING FUEL DELIVERY

Remarks:

A04

Note remarks

: MB 9,6 0 5 Test sheet : 27.03.92 Edition : 09.91 Replaces

: ISO-4113 Test oil

: 0 402 646 955 Combination no.

Injection pump

Pump designation: PE6P120A320LS7834-1

EP type number : 0 412 626 857

Governor

: RQV350...1050PA866 Governor design.

-13

: 0 421 813 954 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M401 LA Enaine

: 230.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Openina

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.60...14.80

Del.guantity cm3/: 22.2...22.4

100 s: (21.9...22.7)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.1...5.7 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm: 350

: 1.40...1.60 travel mm

4th speed rpm : 1200

: 8.50...9.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1130 Speed

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 900

: 222.0...224.0 Del.quantity

1000 : (219.0...227.0)

Spread cm3 : 5.001000 : (9.00) RATED SPEED 1st version Control lever position degrees: 117...125 Testina: 1st rack travel in: 13.70 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1160...1190 4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 63...71 Testing: Speed : 200 L DW Minimum rack trave: 7.30 rom : 350 Rack travel in mm : 5.10...5.70 CONSTANT REGULATION rpm : 350...600 Speed TORQUE CONTROL rpm : 1050 2nd speed Rack travel in m: 14.80...15.00 3rd speed rpm : 800 Rack travel in m: 15.20...15.40 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 900 Pressure : 14.60...14.80 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 11.40...11.60 2nd pressure hPa : 600 Rack travel in m: 13.40...13.60 3rd pressure hPa : 1350 Rack travel in m: 14.70...14.90 * 4th pressure hPa : -Rack travel in m: 10.00...10.30 START CUT-OUT

Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1800 rpm : 1050 Speed Del.quantity cm3/: 234.0...237.0 1000 s: (231.0...240.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1800 : 800 Speed nan Del.quantity cm3/: 241.0...245.0 1000 s: (238.0...248.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1800 : 1050 Speed rpm Del.quantity cm3/: 175.0...179.0 * 1000 s: (172.0...182.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.70 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 250.0...270.0 1000 s: (246.0...274.0) Remarks: * = Set at reduced-delivery stop. * Increase in control-rod travel with respect to setting at least 0.1 mm

1/min : 270 (290)

Note remarks

: MB 9,6 o 7 : 27.03.92 Test sheet Edition : 10.91 Replaces Test oil : ISO-4113

: 0 402 646 961 Combination no.

Injection pump

Pump designation : PE6P120A320LS7834-1

: 0 412 626 857 EP type number

Governor

Governor design.: RQV350...950PA866-14

: 0 421 813 959 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M401 LA Engine

: 213.0 1st version kW Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60 : (5.45...5.55) Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no.

BASIC SETTING

rpm : 600 1st speed

Rack travel in mm : 14.30...14.50

Del.quantity cm3/: 20.9...21.1

100 s: (20.6...21.4)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm : 5.6...6.2 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

: 1.30...1.80 travel mm : 424 2nd speed rpm

2.30...2.80 travel mm

: 700 3rd speed man

: 4.10...4.60 travel mm

: 1008 4th speed rpm

: 7.90...8.40 travel mm

: 1220 5th speed rom

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 985 Speed

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version FUEL DELIVERY CHARACTERISTICS rpm : 600 Speed Aneroid pressure h: 900 : 209.0...211.0 Del.quantity 1000 : (206.0...214.0) 1st version : 5.00 Aneroid pressure h: 1600 Spread cm3 1000 : (9.00) rpm : 950 Speed Del.quantity cm3/: 228.0...231.0 1000 s: (225.0...234.0) RATED SPEED cm3 : 8.00 Spread 1000 s: (12.0) 1st version Aneroid pressure h: 1600 Control lever : 800 position degrees: 111...119 Speed rpm Del.quantity cm3/: 230.0...234.0 1000 s: (227.0...237.0) Testing: cm3 : 8.00 1st rack travel in: 13.80 Spread 1000 s: (12.0) rpm : 990...1000 Aneroid pressure h: 1600 2nd rack travel in: 4.00 Speed rpm : 950
Del.quantity cm3/: 169.0...173.0 *
1000 s: (166.0...176.0) rpm : 1065...1095 Speed 4th rack travel in: 1250 rpm : 0.00...1.00Speed cm3 : 3.00 1000 s: (12.0) Spread LOW IDLE 1 Aneroid pressure h: -Control lever : 500 Speed rpm position degrees: 63...71 Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0) Testina: cm3 : 8.00 Spread Speed : 200 man 1000 s: (12.0) Minimum rack trave: 7.30 rom Rack travel in mm : 5.10...5.70 BREAKAWAY CONSTANT REGULATION rpm : 350...600 1st version Speed 1mm rack travel less than Aneroid/Altitude full load rack tr: 13.80 Compensator Test rpm : 990...1000 Speed STARTING FUEL DELIVERY 1st version Setting : 600 Speed rpm : 100 hPa : 900 Pressure Speed rom Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0) : 13.30...13.50 Rack travel mm Measurement Remarks: $1/\min : 600$ Speed 1st pressure hPa : 300 * = Set at reduced-delivery stop. Rack travel in m: 9.80...10.00 2nd pressure hPa : 550 Rack travel in m: 12.30...12.50 3rd pressure hPa : 1300 Rack travel in m: 13.70...13.90 4th pressure hPa : -Rack travel in m: 9.90...10.20 START CUT-OUT 1/min: 270 (290) Speed

80A

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

: MB 9,6 o 8 : 27.03.92 Test sheet Edition : 01.92 Replaces : ISO-4113 Test oil

: 0 402 646 965 Combination no.

Injection pump

: PE6P120A320LS7834-1 Pump designation

: 0 412 626 857 EP type number

Governor

: RQV350...1050PA866 Governor design.

-19

: 0 421 813 979 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M401 LA, Euro 1 Engine

: 213.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test lines

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.55) Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rom: 600

Rack travel in mm : 14.10...14.30

Del.quantity cm3/: 20.7...20.9

100 s: (20.4...21.2)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.02nd speed Rack travel in mm: 5.4...6.0 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6 Spread 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 350 : 1.30...1.80 travel mm

: 570 2nd speed rpm

: 3.30...3.80 travel mm : 900 3rd speed

rpm

: 5.40...5.90 travel mm

1107 4th speed rpm

travel mm : 7.80...8.30

: 1204 5th speed rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1125

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Aneroid pressure h: 900 : 207.0...209.0 Del.quantity : (204.0...212.0) 1000 : 5.00 Spread cm3 : (9.00) 1000 RATED SPEED 1st version Control lever position degrees: 115...123 Testing: 1st rack travel in: 13.80 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1180...1210 Speed 4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 63...71 Testing: Speed : 200 CDM Minimum rack trave: 7.60 : 350 Speed rpm Rack travel in mm : 5.40...6.00 CONSTANT REGULATION rpm : 350...600 Speed Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm : 900 hPa Pressure : 14.10...14.30 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 10.90...11.10 2nd pressure hPa : 500 Rack travel in m: 12.80...13.00 3rd pressure hPa : 1350 Rack travel in m: 14.40...14.60 4th pressure hPa : -Rack travel in m: 10.20...10.50 START CUT-OUT

FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1600 : 1050 rpm Del.quantity cm3/: 225.0...228.0 1000 s: (222.0...231.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1600 : 800 Speed rpm Del.quantity cm3/: 226.0...230.0 1000 s: (223.0...233.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1600 : 1050 rpm Del.quantity cm3/: 169.0...173.0 * 1000 s: (166.0...176.0) : 8.00 cm3Spread 1000 s: (12.0) Aneroid pressure h: : 500 Speed rpm Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0) cm3 : 8.00Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.80 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0) Remarks: * = Set at reduced-delivery stop.

1/min: 270 (290)

Speed

Note remarks

: MB 9,6 r 5 : 27.03.92 Test sheet Edition : 12.91 Replaces : ISO-4113 Test oil

: 0 402 646 966 Combination no.

Injection pump

Pump designation: PE6P120A320LS7836-1 : 0 412 626 860 EP type number

Governor

: RQV350...1050PA866 Governor design.

-20

: 0 421 813 980 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M401 LA, Euro 1 Engine

1st version kW : 200.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 075 Test lines

Outside diameter

x Wall thickness

: 8,00x2,50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.55) Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 12.40...12.60

Del.quantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 5.6...6.2
Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

: 1.30...1.80 travel mm

2nd speed

rpm : 570 : 3.30...3.80 travel mm

: 900 3rd speed rpm

: 5.40...5.90 travel mm : 1107

4th speed rpm

: 7.80...8.30 travel mm : 1204

5th speed rom : 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-Lever position

Degree: -1

rpm : 1125 Speed

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 600 Speed Aneroid pressure h: 800 : 182.0...184.0 Del.quantity 1000 : (179.0...187.0) : 5.00 cm3Spread : (9.00) 1000 RATED SPEED 1st version Control lever position degrees: 115...123 Testing: 1st rack travel in: 12.10 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1180...1210 Speed 4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 63...71 Testing: rpm : 200 Speed Minimum rack trave: 7.30 : 350 rpm Rack travel in mm : 5.10...5.70 CONSTANT REGULATION rpm : 350...600 Speed Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rom hPa : 800 Pressure : 12.40...12.60 Rack travel mm Measurement $1/\min : 600$ Speed 1st pressure hPa : 200 Rack travel in m: 11.30...11.50 2nd pressure hPa : 1000 Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1600 rpm : 1050 Del.quantity cm3/: 201.0...204.0 1000 s: (198.0...207.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1600 : 800 Speed rpm Del.quantity cm3/: 202.0...206.0 1000 s: (199.0...209.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1600 Speed rpm : 1050 Del.quantity cm3/ : 149.0...153.0 * 1000 s: (146.0...157.0) cm3 : 8.00 Spread

Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rnm : 500

Speed rpm : 500 Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0)

Spread cm3 : 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.10 Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 220.0...240.0 1000 s: (216.0...244.0)

Remarks:

* = Set at reduced-delivery stop.

3rd pressure hPa : -

Speed 1/min: 270 (290)

Rack travel in m: 10.50...10.80

Note remarks

: DAF Test sheet : 27.03.92 Edition Replaces : 02.92 : ISO-4113 Test oil

: 0 402 646 968 Combination no.

Injection pump

Pump designation : PE6P120A320RS7248 : 0 412 626 861 EP type number

Governor

Governor design. : RQV275...1150PA986

Governer no. : 0 421 813 920

Customer-spec. information Customer : DAF

: RS 222 L Engine

1st version kW : 222.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 120...140

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 089 Test lines

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 : (5.15...5.35) Prestroke mm

Rack travel in mm : 14.00...15.00 Firing order : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 11.7...12.7 Difference * CS : 2.25...3.75

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 18.4...18.6

100 s: (18.1...18.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 275.0 2nd speed Rack travel in mm: 5.3...5.5

Del.quantity cm3/: 1.3...1.9 100 s: (1.0...2.2)

cm3 : 0.8

Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 275 1st speed

: 1.20...1.60 travel mm

rpm : 315 2nd speed

: 1.80...2.20 travel mm

3rd speed : 1205 rpm

: 8.10...8.50 travel mm

: 1340 4th speed rpm

: 9.70...9.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm: 1315

Speed Rack travel in mm : 10.90...13.50 FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 1000

Del.quantity : 184.0...189.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 115...123

Testing:

1st rack travel in: 11.20

rom : 1180...1190 Speed

2nd rack travel in: 4.00

Speed rpm: 1290...1320 4th rack travel in: 1450

rpm : 0.00...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 79...87

Testing:

: 175 Speed man Minimum rack trave: 6.30 rpm : 275

Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

rpm : 315...365 Speed

Aneroid/Altitude Compensator Test

1st version Setting

: 600 Speed הוכרו hPa : 1000 Pressure

: 12.20...12.30 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 9.30...9.50

2nd pressure hPa : 420

Rack travel in m: 11.60...11.70 3rd pressure hPa : 240

Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 120.0...122.0

1000 s: (117.0...125.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

rpm : 1180...1190 Speed

LOW IDLE

Speed ron : 275

Rack travel in mm : 4.60...4.80

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

Note remarks

: DAF Test sheet Edition : 27.03.92 : 02.92 Replaces : ISO-4113 Test oil

Combination no. : 0 402 646 969

Injection pump

Pump designation : PE6P120A320RS7248Z

EP type number : 0 412 626 862

Governor

Governor design. : RQV275...1150PA986

: 0 421 813 920 Governer no.

Customer-spec. information Customer : DAF

: RS 200 L Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 120...140

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 089 Test Lines

Outside diameter x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 : (5.15...5.35) Prestroke mm

Rack travel in mm : 14.00...15.00 : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \cdot : 0.50 (0.75)$

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 10.8...11.8

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 16.4...16.6

100 s: (16.1...16.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 275.0 2nd speed

Rack travel in mm: 5.2...5.4

Del.quantity cm3/ : 1.3...1.9 100 s: (1.0...2.2)

cm3 : 0.8

Spread 100 st (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 275 1st speed

: 1.20...1.60 travel mm

rpm : 315 2nd speed

: 1.80...2.20 travel mm

rpm : 1205 3rd speed

: 8.10...8.50 travel mm

: 1340 4th speed rom

: 9.70...9.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1335 Speed

Rack travel in mm : 9.00...11.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

Aneroid pressure h: 1000

: 164.0...166.0 Del.quantity 1000 : (161.0...169.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 116...124

Testing:

1st rack travel in: 10.30

rpm : 1180...1190 2nd rack travel in: 4.00

Speed

rpm : 1275...1305

4th rack travel in: 1450

rpm : 0.00...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 79...87

Testing:

Speed : 175 rom Minimum rack trave: 6.20 rpm : 275

Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

rpm : 315...365 Speed

Aneroid/Altitude Compensator Test

1st version Setting

: 600 man Speed

hPa : 1000 Pressure Rack travel mm : 11.30...11.40

Measurement

Speed $1/\min : 600$

1st pressure hPa : -

Rack travel in m: 9.10...9.30

2nd pressure hPa : 340 Rack travel in m: 10.70...10.80

3rd pressure hPa : 200

Rack travel in m: 9.60...9.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 600 Speed

Del.quantity cm3/: 115.0...117.0 1000 s: (112.0...120.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.30

rpm : 1180...1190 Speed

LOW IDLE

: 275 Speed rpm

Rack travel in mm : 4.60...4.80

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

Note remarks

: DAF Test sheet : 27.03.92 Edition : 02.92 Replaces : ISO-4113 Test oil

: 0 402 646 970 Combination no.

Injection pump

Pump designation : PE6P12OA32ORS7248Y

EP type number : 0 412 626 863

Governor

Governor design. : RQV275...1150PA986

Governer no. : 0 421 813 920

Customer-spec. information : DAF Customer

: RS 180 L Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 120...140

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 089 Test lines

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 14.00...15.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasina

Tolerance + - * : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 10.2...11.2 Difference * CS : 2.25...3.75

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 14.5...14.7

100 s: (14.2...15.0)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 275.0 Rack travel in mm : 5.3...5.5

Del.quantity cm3/: 1.3...1.9

100 s: (1.0...2.2)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 275 : 1.20...1.60 travel mm

rpm : 315 2nd speed

: 1.80...2.20 travel mm

rpm : 1205 3rd speed

: 8.10...8.50 travel mm

: 1340 4th speed rpm

: 9.70...9.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1330 Speed

Rack travel in mm : 9.40...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 1000

: 145.5...147.5 Del.quantity 1000 : (142.5...150.5)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 116...124

Testing:

1st rack travel in: 9.70

rpm : 1180...1190 Speed

2nd rack travel in: 4.00

rpm : 1265...1295 Speed

4th rack travel in: 1450

rpm : 0.00...1.40 Speed

LOW IDLE 1

Control lever position degrees: 79...87

Testing:

rpm : 175 Speed Minimum rack trave: 6.20 : 275 rpm

Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

rpm : 315...365 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rom : 600 Speed hPa : 1000 Pressure

Rack travel mm : 10.70...10.80

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : -

Rack travel in m: 8.80...9.00 2nd pressure hPa : 250

Rack travel in m: 10.20...10.30

3rd pressure hPa : 140

Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 600 Speed

Del.quantity cm3/: 107.0...109.0 1000 s: (104.0...112.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70

rpm : 1180...1190 Speed

LOW IDLE

Speed rpm : 275

Rack travel in mm : 4.60...4.80

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

Prestroke mm BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : DAF Test sheet : 27.03.92 Edition : 02.92 Replaces : ISO-4113 Test oil : 0 402 646 971 Combination no. Injection pump Pump designation : PE6P12OA32ORS7218Z : 0 412 626 847 EP type number Governor Governor design. : RQV275...1000PA939-2 Governer no. : 0 421 813 986 Customer-spec. information : DAF Customer : WS 242 L Engine TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Spread Inlet press., bar: 1.50 Overflow quantity min. 1/h: 95...115 Test nozzle holder : 1 688 901 105 assembly Openina : 207...210 pressure, bar Orifice plate : 0.8 diameter mm : 1 680 750 089 Test lines Outside diameter x Wall thickness : 8.00x2.50x600 x Length mm

Rack travel in mm : 14.00...15.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasina Tolerance + - * : 0.50 (0.75) Time to cyl. no. : 1 BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 4.90...5.10 & maximum rack tra: 13.5...14.5 Difference °CS : 2.25...3.75 BASIC SETTING rpm: 850 1st speed Rack travel in mm : 13.80...13.90 Del.quantity cm3/: 20.5...20.7 100 s: (20.2...21.0) cm3 : 0.5100 s: (0.9) 2nd speed rpm : 275.0 Rack travel in mm : 6.1...6.3 Del.guantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1045 1st speed : 7.70...8.20 travel mm rpm : 275 2nd speed : 1.10...1.60 travel mm : 380 3rd speed rom : 2.40...2.90 travel mm : 675 4th speed rpm : 4.20...4.70 travel mm 1310 5th speed rpm : 11.00...12.00 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1130 Rack travel in mm : 12.60...15.20

: 5.30...5.40

: (5.25...5.45)

(A) Injection pump setting values

Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Insp. values in parentheses

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed Aneroid pressure h: 1000

: 205.0...207.0 Del.quantity

1000 : (202.0...210.0)

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version Control lever

position degrees: 115...123

Testing:

1st rack travel in: 12.80

rpm ; 1040...1050 Speed

2nd rack travel in: 4.00

Speed rpm : 1145...1175

4th rack travel in: 1250

rpm : 0.00...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 78...86

Testing:

Speed : 175 rpm Minimum rack trave: 6.50 : 275 COM

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

: 300...350 Speed nom

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 600 mcgn hPa : 1000 Pressure

: 13.80...13.90 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 11.70...11.90

2nd pressure hPa : 420

Rack travel in m: 13.30...13.40 3rd pressure hPa : 260 Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Ameroid pressure h: -

Speed rpm : 600 Del.quantity cm3/: 147.0...149.0 1000 s: (144.0...152.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80

rpm : 1040...1050 Speed

LOW IDLE

: 275 Speed rpm

Rack travel in mm : 4.90...5.10

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

Note remarks

Test sheet : DAF

: 27.03.92 Edition : 02.92

Replaces : ISO-4113 Test oil

Combination no. : 0 402 646 972

Injection pump

Pump designation : PE6P12OA32ORS7218

: 0 412 626 839 EP type number

Governor

Governor design. : RQV275...1000PA939-2

: 0 421 813 986 Governer no.

Customer-spec. information

Customer : DAF

: WS 268 L Engine

: 268.0 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 95...115

Test nozzle holder

: 1 688 901 105 assembly

0อยาวิกส

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 089

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.30...5.40 Prestroke mm

: (5.25...5.45)

Rack travel in mm : 14.30...15.30 Firing order : 1-5-3-6-2-4 Firing order

: 0-60-120-130-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 14.5...15.5 Difference °CS : 2.25...3.75

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 14.80...14.90

Del.quantity cm3/: 23.0...23.2

100 s: (22.7...23,5)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 275.0 2nd speed Rack travel in mn: 6.1...6.3

Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1045 1st speed

: 7.70...8.20 travel mm rpm : 275 2nd speed

: 1.10...1.60 travel mm

rpm : 380 3rd speed

: 2.40...2.90 travel mm

4th speed

rpm : 675 : 4.20...4.70 travel mm

rpm : 1310 5th speed

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position Degree: -1

Speed rpm : 1125 Rack travel in mm : 13.60...16.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed Aneroid pressure h: 1000

Del.quantity : 230.0...235.0)

: 5.00 Spread 10000 : (9.00)

RATED SPEED

1st version

Control lever position degrees: 116...124

Testina:

1st rack travel in: 13.80

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

rpm : 1150...1180 Speed

4th rack travel in: 1250

rpm : 0.00...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 78...86

Testing:

: 175 Speed rpm Minimum rack trave: 6.50 : 275 rom

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

rpm : 300...350 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rom hPa : 1000 Pressure

: 14.80...14.90 Rack travel mm

Measurement

1/min : 600Speed

1st pressure hPa : -

Rack travel in m: 12.20...12.40

2nd pressure hPa : 490

Rack travel in m: 14.20...14.30 3rd pressure hPa : 280 Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 600

Del.quantity cm3/: 158.0...160.0 1000 s: (155.0...163.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80

rpm : 1040...1050 Speed

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.90...5.10

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

Note remarks

Test sheet : DAF ; 27.03.92 Edition : 02.92 Replaces : ISO-4113 Test oil

Combination no. : 0 402 646 973

Injection pump

Pump designation : PE6P120A320RS7218Z

EP type number : 0 412 626 847

Governor

Governor design. : RQ275/1000PA936-2

: 0 421 801 633 Governer no.

Customer-spec. information Customer : DAF

: WS 242 L Engine

1st version kW : 268.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening.

pressure, bar : 207...210

Test Lines : 1 680 750 089

Outside diameter x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.30...5.40 Prestroke min

: (5.25...5.45)

Rack travel in mm : 14.00...15.00

Firing order : 1-5-3-6-2-4

Firina order

: 0-60-120-180-240-300 Phasina

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 13.5...14.55 Difference ° CS : 2.25...3.75

BASIC SETTING

rom: 850 1st speed

Rack travel in mm: 13.80...13.90

Del.quantity cm3/: 20.5...20.7

100 s: (20.2...21.0)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 275.0 2nd speed

Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 550 Rack travel in mm: 15.60...16.40

FULL LOAD DELTY. AT FULL LOAD STOP

1st version

Speed rpm : 850 Aneroid pressure h: 1000

: 205.0...207.0 Del.quantity 1000 : (202.0...210.0) cm3 : 5.00

Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 550 rom Rack travel in mm: 16.0

Testina:

1st rack travel in: 12.80 Speed rpm : 1035...1050 2nd rack travel in: 4.00

Speed rpm : 1120...1150

4th rack travel in: 1250

rpm : 0.00...1.40 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 275 Rack travel in mm: 5.0

Testina:

: 175 Speed rpm Minimum rack trave: 6.50 rpm : 275

Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 14.80...14.90 2nd speed rpm : 1000

Rack travel in m: 14.70...14.90

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm hPa : 1000 Pressure

Rack travel mm : 13.80...13.90

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : -

Rack travel in m: 11.70...11.90

2nd pressure hPa : 420

Rack travel in m: 13.30...13.40

3rd pressure hPa : 260

Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 600 Speed

Del.quantity cm3/: 147.0...149.0 1000 s: (144.0...152.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80

rpm : 1035...1050 Speed

LOW IDLE

: 275 Speed rpm

Rack travel in mm : 4.90...5.10

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

Note remarks

Test sheet : DAF

: 27.03.92 Edition : 02.92 Replaces

: ISO-4113 Test oil

: 0 402 646 974 Combination no.

Injection pump

Pump designation : PE6Pi2OA32ORS7218

EP type number : 0 412 626 839

Governor

Governor design. : RQ275/1000PA936-2

: 0 421 801 633 Governer no.

Customer-spec. information

Customer : DAF

: WS 268 L Engine

1st version kW : 268.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 95...115

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 089 Test Lines

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.30...5.40 Prestroke mm

: (5.25...5.45)

Rack travel in mm : 14.50...15.50

Firing order : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - " : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 14.5...15.5 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 14.80...14.90

Del.quantity cm3/: 23.0...23.2

100 s: (22.7...23.5)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 275.0 2nd speed Rack travel in mm: 6.1...6.3

Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 Speed rpm : 550 Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed Aneroid pressure h: 1000

: 230.0...232.0 Del.quantity 1000 : (227.0...235.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 550 Speed rom Rack travel in mm: 16.0

Testing:

1st rack travel in: 13.80 Speed rpm : 1035...1050

2nd rack travel in: 4.00

rpm : 1140...1170 Speed

4th rack travel in: 1250

rpm : 0.00.4.1.40 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm Rack travel in mm: 5.0

Testing:

: 175 Speed MOM Minimum rack trave: 6.50 rpm : 275

Rack travel in mm: 4.90...5.10

Rack travel in mm: 2.00 Speed rpm: 330...370

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 15.30...15.40

2nd speed rpm : 1000

Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 600 morn hPa : 1000 Pressure

: 14.80...14.90 Rack travel mm

Measurement

Speed 1/min: 600

1st pressure hPa : -Rack travel in m: 12.20...12.40

2nd pressure hPa : 490

Rack travel in m: 14.20...14.30

3rd pressure hPa : 280

Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm_ : 600 Speed

Del.quantity cm3/: 158.0...160.0 1000 s: (155.0...163.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80

rpm : 1035...1050 Speed

LOW IDLE

Speed rpm : 275 Rack travel in mm : 4.90...5.10

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

A26

Note remarks

: DAF Test sheet

: 13.03.92 Edition

Replaces

: ISO-4113 Test oil

: 0 402 646 984 Combination no.

Injection pump

Pump designation : PE6P120A320RS7248

: 0 412 626 861 EP type number

Governor

Governor design. : RQ275/1150PA987 : 0 421 801 578 Governer no.

Customer-spec, information : DAF Customer

: RS 222 L Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 1 638 901 105 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 089 Test Lines

Outside diameter x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm : (5.15...5.35)

Rack travel in mm : 14.00...15.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 11.7...12.7 Difference ° CS : 2.25...3.75

BASIC SETTING

rom : 10001st speed

Rack travel in mm : 12.20...12.30

Del.guantity cm3/: 18.4...18.6

100 s: (18.1...18.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 275.0 2nd speed

Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.3...1.9

100 s: (1.0...2.2)

cm3 : 0.8 Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 550

Speed Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000Speed

Aneroid pressure h: 1000

: 184.0...186.0 Del.quantity 1000 : (181.0...189.0)

: 5.00 Spread cm3

: (9.00) 1000

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm: 16.0 Testing:

1st rack travel in: 11.20 Speed rpm : 1175...1190

2nd rack travel in: 4.00

rpm : 1255...1285 Speed

4th rack travel in: 1450

rom : 0.00...1.40 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 275 Rack travel in mm: 4.7

Testing:

: 100 Speed rpm Minimum rack trave: 6.20 : 275 rpm

Rack travel in mm : 4.60...4.80 Rack travel in mm : 2.00

Speed rpm : 320...360

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 13.20...13.30 2nd speed rpm : 1150 Rack travel in m: 13.10...13.30

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm hPa : 1000 Pressure

Rack travel mm : 12.20...12.30

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 9.50...9.70
2nd pressure hPa : 420
Rack travel in m: 11.60...11.70
3rd pressure hPa : 240

Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 600 Speed

Del.quantity cm3/: 120.0...122.0 1000 s: (117.0...125.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

rpm : 1175...1190 Speed

LOW IDLE

: 275 Speed rpm

Rack travel in mm : 4.60...4.80

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

Note remarks

Test sheet : DAF

Edition : 13.03.92

Replaces

: ISO-4113 Test oil

: 0 402 646 985 Combination no.

Injection pump

Pump designation: PE6P120A320RS7248Z

EP type number : 0 412 626 862

Governor

Governor design. : RQ275/1150PA987

: 0 421 801 578 Governer no.

Customer-spec. information

: DAF Customer

: RS 200 L Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening |

: 207...210 pressure, bar

diameter mm : 0,8

Outside diameter

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

Rack travel in mm : 14.00...15.00

Orifice plate

: 1 680 750 089 Test lines

x Wall thickness

x Length mm : 8.00x2.50x600

BEGINNING OF DELIVERY

: (5.15...5.35)

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 10.8...11.8 Difference ° CS : 3.25...4.75

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm: 11.30...11.40

Del.quantity cm3/: 16.4...16.6

100 s: (16.1...16.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 275.0 2nd speed

Rack travel in mm : 5.3...5.5 Del.quantity cm3/: 1.3...1.9

100 s: (1.0...2.2)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 Speed rpm: 550 Rack travel in mm: 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

Aneroid pressure h: 1000

: 164.0...166.0 Del.quantity 1000 : (161.0...169.0)

: 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm: 16.0 Testing:

1st rack travel in: 10.30

rpm : 1175...1190

2nd rack travel in: 4.00

rpm : 1245...1275 Speed

4th rack travel in: 1450

rpm : 0.00...1.40 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 275 Rack travel in mm: 4.7

Testina:

: 100 Speed rpm Minimum rack trave: 6.20

: 275 rpm

Rack travel in mm: 4.60...4.80 Rack travel in mm: 2.00

rpm : 320...360 Speed

TORQUE CONTROL

Dimension a mm :-

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 12.30...12.40

2nd speed rpm : 1150 Rack travel in m: 12.20...12.40

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm hPa : 1000 Pressure

: 11.30...11.40 Rack travel mm

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : -

Rack travel in m: 9.00...9.20

2nd pressure hPa : 340

Rack travel in m: 10.70...10.80 3rd pressure hPa : 200

Rack travel in m: 9.60...9.80

FUFL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 600

Del.quantity cm3/: 115.0...117.0

1000 s: (112.0...120.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

rpm : 1175...1190 Speed

LOW IDLE

rpm : 275 Speed

Rack travel in mm : 4.60...4.80

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

Note remarks

Test sheet

: DAF

Edition

: 13.03.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 646 986

Injection pump

Pump designation : PE6P12DA32ORS7248Y

EP type number

: 0 412 626 863

Governor

Governer no.

Governor design. : RQ275/1150PA987

: 0 421 801 578

Customer

Customer-spec. information

: DAF

Engine

: RS 180 L

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 105

Openina

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0.8

Test lines

: 1 680 750 089

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30

(5.15...5.35)

Rack travel in mm : 14.00...15.00

B03

: 1-5-3-6-2-4 Firing order

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10

& maximum rack tra: 10.2...11.2 Difference ° CS : 3.25...4.75

BASIC SETTING

1st speed

rpm : 1000

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 14.5...14.7

100 s: (14.2...15.0)

Spread

cm3 : 0.5

100 s: (0.9)

2nd speed

rpm : 275.0

Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.3...1.9

100 s: (1.0...2.2)

Spread

cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

Speed rpm : 550 Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1000

Aneroid pressure h: 1000

Del.quantity

: 145.5...147.5 10<u>0</u>0 : (142.5...150.5)

Spread

: 5.00 cm3

: (9.00) 1000

RATED SPEED

1st version

Setting point:

rpm

Speed Rack travel in mm: 16.0

Testina:

1st rack travel in: 9.70

rpm : 1175...1190 Speed

2nd rack travel in: 4.00

Speed rpm : 1240...1270 4th rack travel in: 1450

Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring

rpm Rack travel in mm: 4.7

Testing:

Speed : 100 rpm Minimum rack trave: 6.20

Speed rpm : 275 Rack travel in mm : 4.60...4.80

Rack travel in mm : 2.00

: 320...360 Speed rom

TORQUE CONTROL

Dimension a mm :-

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 11.70...11.80

2nd speed rpm : 1150

Rack travel in m: 11.60...11.80

Ameroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rom hPa : 1000 Pressure

: 10.70...10.80 Rack travel mm

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : -

Rack travel in m: 8.80...9.00

2nd pressure hPa : 250

Rack travel in m: 10.20...10.30 3rd pressure hPa : 140

Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/: 107.0...109.0

1000 s: (104.0...113.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70

rpm : 1175...1190 Speed

LOW IDLE

: 275 Speed rpm

Rack travel in mm : 4.60...4.80

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

B04

Note remarks

Test sheet Edition : UNI

: 03.04.92

Replaces

: ISO-4113 Test oil

Combination no. : 0 402-646 990

Injection pump

Pump designation : PE6P130A720RS7225

: 0 412 636 817 EP type number

Governor

Governor design. : RQV300...950PA975-2K

: 0 421 815 310 Governer no.

Customer-spec. information

: IVECO-UNIC Customer

: 8210.42.369 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15)

Rack travel in mm : 11.50...12.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 950

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 25.2...25.4

100 s: (24.9...25.7)

cm3 : 0.6Spread

100 s: (1.0)

rpm : 300.02nd speed Rack travel in mm: 4.1...4.5

Del.quantity cm3/: 1.9...2.5 100 s: (1.5...2.9)

cm3 : 1.0Spread

100 s: (1.4)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 995 1st speed

: 8.40...8.60 travel mm

rpm : 300 2nd speed

: 1.00...1.40 travel mm

rpm : 500 3rd speed

: 3.30...3.90 travel mm

rpm : 700 4th speed

: 5.40...5.80 travel mm

rpm : 1400 5th speed

: 13.00...14.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1175

Speed

Rack travel in mm : 9.70...12.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 950 Speed

Aneroid pressure h: 1000

Del.quantity : 232.0...257.0)

cm3 : 6.00 1000 : (10.00) Spread RATED SPEED 1st version Control lever position degrees: 109...117 Testing: 1st rack travel in: 10.90 rpm : 990...1000 Speed 2nd rack travel in: 4.00 rpm : 1080...1110 Speed 4th rack travel in: 1200 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 61...69 Testing: : 100 Speed rpm Minimum rack trave: 5.80 : 300 rpm Rack travel in mm : 4.20...4.40 CONSTANT REGULATION rpm : 340...460 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 950 1st speed Rack travel in m: 11.90...12.00 rpm : 350 2nd speed Rack travel in m: 11.30...11.50 3rd speed rpm : 700 Rack travel in m: 11.90...12.00 th speed rpm : 550 Rack travel in m: 11.70...11.90 4th speed Aneroid/Altitude Compensator Test 1st version Setting : 950 Speed rpm hPa : 1000 Pressure : 11.90...12.00 Rack travel mm

Measurement 1/min: 950 Speed 1st pressure hPa : -Rack travel in m: 9.50...9.70 2nd pressure hPa : 600 Rack travel in m: 10.80...10.90 3rd pressure hPa : 500 **B06**

Rack travel in m: 10.00...10.20 START CUT-OUT 1/min: 240 (260) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 700 Speed Del.quantity cm3/: 259.0...265.0 1000 s: (259.0...265.0) Aneroid pressure h: 1000 : 550 Speed וחמיז Del.quantity cm3/: 261.0...267.0 1000 s: (258.0...270.0) Aneroid pressure h: rpm : 550 Speed Del.quantity cm3/: 186.0...188.0 1000 s: (186.0...188.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.90 rpm : 990...1000 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 145.0...175.0 1000 s: (141.0...179.0) LOW IDLE rpm : 300 Speed Rack travel in mm : 4.10...4.50 Del.quantity cm3/: 19.0...25.0 1000 s: (15.0...29.0) cm3 : 10.00Spread 1000 s: (14.00) Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

Test sheet

: DAF

Edition

: 13.03.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 402 646 991

Injection pump

EP type number

Pump designation : PE6P12DA32ORS7218Y

: 0 412 626 859

Governor

Covernor design. : RQV275...1000PA939-2

Governer no.

: 0 421 813 986

Customer-spec. information Customer

: DAF

Engine

: WS 222 L

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 105

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.8

: 1 680 750 089 Test Lines

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.30...5.40 : (5.25...5.45)

Rack travel in mm : 14.00...15.00

B07

: 1-5-3-6-2-4 Firing order

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10

& maximum rack tra: 13.2...14.2 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed

rpm: 850

Rack travel in mm : 13.70...13.80

Del.guantity cm3/: 19.5...19.7

100 s: (19.2...20.0)

Spread

cm3 : 0.5

100 s: (0.9)

rpm : 275.0 2nd speed

Rack travel in mm : 6.3...6.5 Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8 Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1045 1st speed

: 7.70...8.20 rpm : 275 travel mm

2nd speed

: 1.10...1.60 travel mm

rpm : 380 3rd speed

: 2.40...2.90 travel mm

: 675 4th speed rpm

: 4.20...4.70 travel mm

1310 5th speed rpm

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150 Speed

Rack travel in mm : 11.40...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed Aneroid pressure h: 1000

: 195.0...197.0 Del.quantity 1000 : (192.0...200.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 115...123

Testing:

1st rack travel in: 12.70

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

rpm : 1140...1170 Speed

4th rack travel in: 1250

rpm : 0.00...1.40Speed

LOW IDLE 1 Control lever

position degrees: 78...86

Testing:

Speed : 100 rpm Minimum rack trave: 6.50 rpm : 275

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

rpm : 300...350 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed MCT hPa : 1000 Pressure

: 13.70...13.80 Rack travel mm

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : -

Rack travel in m: 11.50...11.70

2nd pressure hPa : 400

Rack travel in m: 13.20...13.30 3rd pressure hPa : 230

Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

B08

rpm : 600 Speed

Del.quantity cm3/: 139.0...141.0 1000 s: (136.0...144.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70

rpm : 1040...1050 Speed

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.90...5.10

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

Note remarks

: MB 14,7 e 3 Test sheet : 27.03.92 Edition

: 11.91 Replaces : ISO-4113 Test oil

: 0 402 648 831 Combination no.

Injection pump

Pump designation : PE8P120A320LS7801-1

: 0 412 628 818 EP type number

Governor

Governor design. : RQV350...1050PA842-7

: 0 421 813 874 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M442 LA Engine

: 320.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test lines

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-

Firing order

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.50...14.70

Del.quantity cm3/: 21.2...21.4

100 s: (20.9...21.7)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.7...5.9 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

: 0.80...1.20 travel mm

rpm : 510 2nd speed

: 3.60...4.10 rpm : 1100 travel mm

3rd speed

: 7.80...8.40 travel mm

rpm : 1270 4th speed

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1125

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

4th pressure hPa : 1250 Rack travel in m: 15.50...15.70 Speed rpm : 600 Aneroid pressure h: 750 5th pressure hPa : -: 212.0...214.0 Dei.quantity 1000 : (209.0...217.0) Rack travel in m: 11.60...11.80 : 5.00 cm3 Spread : (9.00) START CUT-OUT 1000 1/min : 270 (290) RATED SPEED Speed FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 64...72 1st version Aneroid pressure h: 1250 Testing: Speed rpm : 1050 Del.quantity cm3/ : 221.0...224.0 1st rack travel in: 14.20 rpm : 1090...1100 Speed 1000 s: (218.0...227.0) 2nd rack travel in: 4.00 cm3 : 8.00rpm : 1160...1190 Spread Speed 4th rack travel in: 1300 Speed rpm: 0.00...1.50 1000 s: (12.0) Aneroid pressure h: 1250 rpm : 900 Speed Del.quantity cm3/: 233.0...237.0 1000 s: (230.0...240.0) LOW IDLE 1 Control lever cm3 : 8.00Spread position degrees: 8...16 1000 s: (12.0) Aneroid pressure h: 1250 Testing: : 1050 Speed Speed rpm : 100 rpm Del.quantity cm3/: 154.0...157.0 1000 s: (151.0...160.0) Minimum rack trave: 7.40 rpm cm3 : 8,00 Rack travel in mm : 5.50...6.10 Spread 1000 s: (12.0) Aneroid pressure h: -CONSTANT REGULATION Speed rpm: 500 Del.quantity cm3/: 147.0...149.0 1000 s: (144.0...152.0) rpm : 350...550 Speed TORQUE CONTROL cm3 : 8.00Spread Dimension a mm : 0.40 1000 s: (12.0) 2nd speed rpm : 1050 Rack travel in m: 15.20...15.40 3rd speed rpm : 975 Rack travel in m: 15.60...15.80 BREAKAWAY 1st version Aneroid/Altitude 1mm rack travel less than Compensator Test full load rack tr: 14.20 rpm : 1090...1100 1st version Speed Setting STARTING FUEL DELIVERY : 600 Speed rpm hPa : 750 Pressure : 14.50...14.70 Rack travel mm Speed rpm Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0) Measurement $1/\min : 600$ Speed Remarks: 1st pressure hPa : 400 Rack travel in m: 12.20...12.40 • 2nd pressure hPa : 550 Rack travel in m: 13.60...13.80
3rd pressure hPa : 900
Rack travel in m: 14.70...14.80

Note remarks

Test sheet Edition

: SCA : 22.11.91

Replaces

Test oil

: ISO-4113

Combination no. : 0 402 648 874

Injection pump

Pump designation : PE8P12DA92D/4LS7189

EP type number

: 0 412 628 840

Governor

Governor design. : RQV200...950PA736-8

Governer no.

: 0 421 813 815

Customer-spec. information Customer

: SCANIA

Engine

: DSC14 10

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 104 assembly

Openina

: 250...253 pressure, bar

Orifice plate

: 0.7 diameter mm

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.00...5.10

: (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order

: 1-2-7-3-4-5-

Phasing

: 0-45-90-135-180-225-

270-315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

Spread

rpm: 700

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 23.7...23.9

100 s: (23.4...24.2)

cm3 : 0.7

100 s: (1.0)

rpm : 250.02nd speed

Rack travel in mm: 4.4...4.8

Del.quantity cm3/ : 1.2...1.6

100 s: (-)

cm3 : 0.3Spread

100 s: (0.6)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

: 1.40...1.80 travel mm

2nd speed rpm : 350

: 2.30...2.90 travel mm

: 650 3rd speed rpm

: 4.40...5.00 travel mm

rpm : 995 4th speed

: 7.70...7.90 travel mm

rpm : 1115 5th speed

: 9.20...9.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150 Speed

Rack travel in mm : 7.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 700

Aneroid pressure h: 900 Del.quantity

: 237.0...239.0

1000 : (234.0...242.0)

B11

cm3 : 7.00 1000 : (10.00) Spread

RATED SPEED

1st version Control lever

position degrees: 90...98

Testing:

1st rack travel in: 12.00 rpm : 990...1000 Speed

2nd rack travel in: 4.00

Speed rpm: 1100...1130 4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 40...48

Testing:

rpm : 100 Speed Minimum rack trave: 5.00 rpm : 250

Rack travel in mm : 4.40...4.60

Rack travel in mm: 2.00 Speed rpm: 375...435

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rom Pressure hPa : 900

Rack travel mm : 13.00...13.10

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 9.80...10.20

2nd pressure hPa : 525
Rack travel in m: 11.70...11.80
3rd pressure hPa : 320
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 500

Del.quantity cm3/: 142.0...146.0

1000 s: (140.0...148.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

rpm : 990...1000 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...180.0

1000 s: (-)

Rack travel in mm : 9.80...10.20

LOW IDLE

Speed rpm : 250

Rack travel in mm : 4.40...4.60

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

Start-of-delivery setting with ROBO diaphragm.

Note remarks

: MB 12,8 o : 20.03.92 : 24.01.92 Test sheet Edition Replaces : ISO-4113 Test oil

Combination no. : 0 402 648 893

Injection pump

Pump designation : PE8P120A320LS7835

: 0 412 628 847 EP type number

Governor

Governor design. : RQ300/950PA971-2 : 0 421 801 548

Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M402 A Engine

1st version kW : 280.0 : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. "C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening.

: 207...210 pressure, bar

Orifice plate

: 0.8 diameter mm

: 1 680 750 075 Test Lines

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm : (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.10...14.30

Del.quantity cm3/: 22.5...22.7

100 s: (22.2...23.0)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.5

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 1000

: 225.0...227.0 Del.guantity 1000 : (222.0...230.0)

: 6.00 : (9.00) Spread cm3

1000

RATED SPEED

1st version

Setting point:

rpm : 600 Speed

cm3 : 8.00Rack travel in mm: 20.0 Spread 1000 s: (12.0) Aneroid pressure h: 1500 Testina: Speed rpm : 750
Del.quantity cm3/ : 234.0...238.0
1000 s: (231.0...241.0) 1st rack travel in: 12.90 rpm : 990...1005 Speed 2nd rack travel in: 4.00 cm3 : 8.00Speed rpm : 1070...1100 Spread 1000 s: (12.0) 4th rack travel in: 1150 rpm : 0.00...1.50 Aneroid pressure h: -Speed rpm : 500 Speed Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0) LOW IDLE 1 Setting point w/out bumper spring cm3 : 8.00: 300 Spread rom 1000 s: (12.0) Rack travel in mm: 6.2 Testing: BREAKAWAY Speed rpm : 200 Minimum rack trave: 7.50 : 300 1st version rtm Rack travel in mm : 5.90...6.50 1mm rack travel less than Rack travel in mm : 2.00 full load rack tr: 12.90 rpm : 380...420 Speed rpm : 990...1005 Speed TORQUE CONTROL : 0.50 STARTING FUEL DELIVERY Dimension a mm 2nd speed rpm : 950 Rack travel in m: 13.90...14.10 : 100 3rd speed rpm : 800 Speed rpm Del.quantity cm3/: 40.0...70.0 1000 s: (36.0...74.0) Rack travel in mm: 10.10...10.40 Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test rpm : 100 Del.quantity cm3/: 210...230 ** 1000 s: (200...240) 1st version Setting : 600 Remarks: Speed man: hPa : 1000 Pressure : 14.10...14.30 Rack travel mm * Increase in control-rod travel with respect to setting at least 0.1 mm Measurement 1/min: 600 Speed 1st pressure hPa : 250 ** Value only applies to governor with Rack travel in m: 10.30...10.50 no TAS 2nd pressure hPa : 650 Rack travel in m: 13.10...13.30 3rd pressure hPa : 8120 Rack travel in m: 14.20...14.40 * 4th pressure hPa : -Rack travel in m: 10.10...10.40 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 rpm : 950 Speed Del.quantity cm3/: 216.0...219.0 1000 s: (213.0...222.0)

Note remarks

: MB 12,8 o 1 : 20.03.92 Test sheet Edition : 01.92 Replaces

: ISO-4113 Test oil

Combination no. : 0 402 648 894

Injection pump

Pump designation : PE8P120A320LS7835 EP type number : 0 412 628 847

Governor

: RQV300...950PA797-18 Governor design.

: 0 421 813 886 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M402 A Engine

: 280.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 638 901 105

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 630 1st speed

Rack travel in mm : 14.10...14.30

Del.quantity cm3/: 22.5...22.7

100 s: (22.2...23.0)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 5.9...6.5 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6 Spread 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.00...1.50 travel mm rpm : 567 2nd speed

: 4.40...4.90 travel mm

rpm : 780 3rd speed

: 6.10...6.60 travel mm

4th speed : 1009 rpm : 8.30...8.80 travel mm

rpm : 1092 5th speed

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 980 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 600 Speed Aneroid pressure h: 1000 : 225.0...227.0 Del.quantity 1000 : (222.0...230.0) : 6.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 122...130 Testing: 1st rack travel in: 12.90 rpm : 990...1000 Speed 2nd rack travel in: 4.00 Speed rpm : 1070...1100 4th rack travel in: 1250 rpm : 0.00...1.50Speed LOW IDLE 1 Control lever position degrees: 80...88 Testing: Speed **CDM** Minimum rack trave: 7.50 : 300 Speed rom Rack travel in mm : 5.90...6.50 CONSTANT REGULATION rpm : 250...360 Speed TORQUE CONTROL Dimension a mm : 0.50 2nd speed rpm : 950 Rack travel in m: 13.90...14.10 3rd speed rpm : 800 Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rom hPa : 1000 Pressure : 14.10...14.30 Rack travel mm Measurement $1/\min : 600$ Speed 1st pressure hPa : 250 Rack travel in m: 10.30...10.50 2nd pressure hPa : 650

Rack travel in m: 13.10...13.30

3rd pressure hPa : 1200 Rack travel in m: 14.20...14.40 * 4th pressure hPa : -Rack travel in m: 10.10...10.40 START CUT-OUT 1/min: 240 (260) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 Speed rpm : 950
Del.quantity cm3/: 216.0...219.0
1000 s: (213.0...222.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1500 rpm : 750 Speed Del.quantity cm3/: 234.0...238.0 1000 s: (231.0...241.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 132.0...134.0 1000 s: (129.0...137.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.90 rpm : 990...1000 Speed STARTING FUEL DELIVERY : 100 Speed rom Del.quantity cm3/: 210.0...230.0 1000 s: (206.0...234.0) Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 12,8 o 2 Test sheet : 20.03.92 Fditim : 02.92 Replaces

: ISO-4113 Test oil

: 0 402 648 895 Combination no.

Injection pump

Pump designation: PE8P120A320LS7835

: 0 412 628 847 EP type number

Governor

Governor design. : RQ300/1050PA972-1

Governer no. : 0 421 801 545

Customer-spec, information

: MERCEDES-BENZ Customer

: 0M402 A Engine

1st version kW : 280.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test lines

Outside diameter x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.50...5.60 : (5.45...5.65)

Rack travel in mm : 20.00...21.00

: 8-7-2-6-3-5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.20...14.40

Del.quantity cm3/: 22.5...22.7

100 s: (22.2...23.0)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 6.2...6.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 1000

: 225.0...227.0 Del.quantity

1000 : (222.0...230.0) cm3 : 6.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm

cm3 : 8.00 1000 s: (12.0) Spread Rack travel in mm: 20.0 Aneroid pressure h: 1500 Testina: rpm : 800 1st rack travel in: 13.00 Speed Del.quantity cm3/: 232.0...236.0 1000 s: (229.0...239.0) Speed rpm : 1090...1105 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1350 cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rom : 0.00...1.50Speed Amercid pressure h: rpm : 500 Speed LOW IDLE 1 Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0) Setting point w/out bumper spring CDM cm3 : 8.00 Rack travel in mm: 6.5 Spread 1000 s: (12.0) Testing: Speed : 200 man Minimum rack trave: 7.80 BREAKAWAY : 300 rpm Rack travel in mm : 6.20...6.80 Rack travel in mm : 2.00 1st version 1mm rack travel less than : 380...420 Speed man full load rack tr: 13.00 rpm : 1090...1105 Speed TORQUE CONTROL Dimension a mm : 0.50 nd speed rpm : 1050 Rack travel in m: 14.00...14.20 STARTING FUEL DELIVERY 2nd speed 3rd speed rpm : 800 Rack travel in m: 14.60...14.80 : 100 Speed rpm Del.quantity cm3/: 30.0...70.0 1000 s: (26.0...74.0) Aneroid/Altitude Rack travel in mm: 10.10...10.50 Compensator Test Remarks: 1st version Setting * Increase in control-rod travel with : 600 Speed mqn respect to setting at least 0.1 mm hPa : 1000 Pressure Rack travel mm : 14.20...14.40 Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 10.40...10.60 2nd pressure hPa : 650 Rack travel in m: 13.20...13.40 3rd pressure hPa : 1200 Rack travel in m: 14.30...14.40 * 4th pressure hPa : -Rack travel in m: 10.10...10.40 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 rpm : 1050 Del.quantity cm3/: 214.0...217.0 1000 s: (211.0...220.0)

Note remarks

: FIA 17,2 f Test sheet : 13.03.92 Edition : 07.91 Replaces Test oil : ISO-4113

: 0 492 648 912 Combination no.

Injection pump

Pump designation : PE8P130A920/5LS7841 EP type number : 0 412 638 803

Governor

Governor design. : RQV300...950PA994K

Governer no.

: 0 421 815 275

Customer-spec. information : IVECO-FIAT Customer

: 8280.42.050 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 40...45

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 075 Test lines

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15)

Rack travel in mm : 11.50...12.50

: 1- 8- 4- 3- 6- 5-7- 2 Firing order

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - *

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack tray. m: 11.50...12.50 & maximum rack tra: 19,9...20,1 Difference ° CS : 1.25...2.75

BASIC SETTING

rom: 950 1st speed

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 21.8...22.0

100 s: (21.5...22.3)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 3.8...4.2 Del.quantity cm3/ : 2.2...2.8 100 s: (1.9...3.1)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 995 1st speed

: 10.20...10.40 travel mm

2nd speed rpm :

: 300 : 2.00...2.30 travel mm

rpm : 700 3rd speed

: 5.80...6.20 travel mm rpm : 1200 4th speed

travel mm : 13.00...14.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1000 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 950 Speed

Aneroid pressure h: 900 Del.quantity : 218.0...220.0

1000 : (215.0...223.0)

cm3 : 5.00Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 109...117

Testing:

1st rack travel in: 9.50 npm : 990...1000 Speed 2nd rack travel in: 4.00

rpm : 1035...1065

4th rack travel in: 1200

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 58...66

Testing:

mom : 200 Speed Minimum rack trave: 5.50

Speed rpm : 300 Rack travel in mm : 3.90...4.10

CONSTANT REGULATION

rpm : 310...440Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 950

Rack travel in m: 10.50...10.60 2nd speed rpm : 400

Rack travel in m: 9.90...10.10

3rd speed rpm : 550

Rack travel in m: 10.10...10.30

Aneroid/Altitude Compensator Test

1st version Setting

: 950 Speed rpm hPa : 900 Pressure

: 10.50...10.60 Rack travel mm

Measurement

1/min: 950 Speed

1st pressure hPa : -

Rack travel in m: 8.20...8.40

2nd pressure hPa : 300

Rack travel in m: 9.90...10.00

3rd pressure hPa : 230

Rack travel in m: 8.80...10.00

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 500 Speed

Del.quantity_cm3/: 144.0...147.0

1000 s: (140.5...150.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.50

rpm : 990...1000 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.guantity cm3/: 140.0...170.0

1000 s: (136.0...174.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.80...4.20
Del.quartity cm3/ : 22.0...28.0 1000 s: (19.0...31.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

: FIA 17.2 f1 : 20.03.92 Test sheet Edition : 07.91 Replaces

: ISO-4113 Test oil

Combination no. : 0 402 648 913

Injection pump

Pump designation : PE8P130A920/5LS7841

: 0 412 638 803 EP type number

Governor

Governor design. : RQV300...950PA994-1K

: 0 421 815 276 Governer no.

Customer-spec. information : IVECO-FIAT Customer

: 8280.42.350 SPR Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 40...45

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test lines

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15)

Rack travel in mm : 11.50...12.50

: 1- 8- 4- 3- 6- 5-7- 2 Firing order

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 11.5...12.5 & maximum rack tra: 19.9...20.1 Difference * CS : 1.25...2.75

BASIC SETTING

rpm: 950 1st speed

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 24.8...25.0

100 s: (24.5...25.3)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm : 4.0...4.4 Del.quantity cm3/: 2.2...2.8

100 s: (1.9...3.1) cm3 : 0.8

Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 995 1st speed

: 10.20...10.40 travel mm

rpm : 300 2nd speed

: 2.00...2.30 travel mm

rpm : 700 3rd speed

: 5.80...6.20 travel mm

rpm : 1200 4th speed

: 13.00...14.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1040

Rack travel in mm : 9.00...11.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 950 Speed Aneroid pressure h: 900 : 248.0...250.0 Del.quantity 1000 : (245.0...253.0)

: 5.00 cm3 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 110...118

Testing:

1st rack travel in: 10.30 Speed rom : 990...1000 2nd rack travel in: 4.00

rpm : 1040...1070 Speed

4th rack travel in: 1200

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 58...66

Testing:

Speed rpm : 200 Minimum rack trave: 5.70 : 300 LOW

Rack travel in mm : 4.10...4.30

CONSTANT REGULATION

rpm : 310...440 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 950

Rack travel in m: 17.30...11.40

rpm : 800 2nd speed

Rack travel in m: 11.20...11.40

3rd speed rpm : 650

Rack travel in m: 11.00...11.30 4th speed rpm : 400

Rack travel in m: 10.40...10.70

Aneroid/Altitude Compensator Test

1st version Setting

: 950 Speed mon hPa : 900 Pressure

: 11.30...11.40 Rack travel mm

Measurement

1/min: 950 Speed

1st pressure hPa : -

Rack travel in m: 7.60...7.80 2nd pressure hPa : 450 Rack travel in m: 10.60...10.70

3rd pressure hPa : 280

Rack travel in m: 8.70...9.10

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 140.0...142.0 1000 s: (137.0...145.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.30

rpm : 990...1000 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 170.0...200.0 1000 s: (166.0...204.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 4.00...4.40 Del.quantity cm3/: 22.0...28.0 1000 s: (19.0...31.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

: MB 12,8 o 3 Test sheet : 20.03.92 Edition : 01.92 Replaces : ISO-4113 Test oil

: 0 402 648 914 Combination no.

Injection pump

Pump designation : PE8P120A320LS7835 EP type number : 0 412 628 847

Governor

: RQV300...1050PA797 Governor design.

-30

: 0 421 813 921 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M402 A Engine

: 280.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test lines

Outside diameter

x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.50...5.60 : (5.45...5.65)

Rack travel in mm : 20.00...21.00 : 8- 7- 2- 6- 3- 5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.80...15.00

Del.quantity cm3/: 22.5...22.7

100 s: (22.2...23.0)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 6.2...6.8

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.50...1.00 travel mm

2nd speed

rpm : 625 : 4.80...5.30 travel mm

rpm : 830 3rd speed

: 5.90...6.40 travel mm

rpm : 1108 4th speed

: 8.10,...8.60 travel mm

rpm : 1190 5th speed

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1130 Speed

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 600 Speed Aneroid pressure h: 1000 : 225.0...227.0 1000 : (222.0...230.0) Del.quantity : 6.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 13.30 Speed rpm : 1090...1100 2nd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1250 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 82...90 Testing:

: 200 Speed rom Minimum rack trave: 7.80 : 300 rom

Rack travel in mm : 6.20...6.80

CONSTANT REGULATION rpm : 300...500 Speed

TORQUE CONTROL Dimension a mm : 0.60 nd speed rpm : 1050 Rack travel in m: 14.30...14.50 2nd speed nom

: 800 3rd speed rpm

Rack travel in m: 15.20...15.40

Ameroid/Altitude Compensator Test

1st version Setting

: 600 Speed rpin hPa : 1000 Pressure

: 14.80...15.00 Rack travel mm

Measurement

Speed 1/min: 600

1st pressure hPa : 250

Rack travel in m: 11.00...11.20

2nd pressure hPa : 650

Rack travel in m: 13.80...14.00

3rd pressure hPa : 1200 Rack travel in m: 14.90...15.00 *

4th pressure hPa : -

Rack travel in m: 9.30...9.60

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 rpm : 1050

Del.quantity cm3/: 214.0...217.0 1000 s: (211.0...220.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: 1500 : 800 Speed rpm

Del.quantity cm3/: 232.0...236.0 1000 s: (229.0...239.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0)

cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.30

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 12,8 o 4 Test sheet : 20.03.92 Edition : 01.92 Replaces : ISO-4113 Test oil

Combination no. : 0 402 648 915

Injection pump

Pump designation : PE8P120A320L87835 : 0 412 628 847 EP type number

Governor

Governor design. : RQ300/1050PA993-1

Governer no.

: 0 421 801 582

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M402 A Engine

1st version kW : 280.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test Lines

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.80...15.00

Del.quantity cm3/ : 22.5...22.7

100 s: (22.2...23.0)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in an : 6.2...6.8

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2 rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 1000

Del.quantity : 225.0...227.0

1000 : (222.0...230.0)

: 6.00 Spread cm3

1000 : (9.66)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm

Rack travel in mm: 20.0 Testina: 1st rack travel in: 13.70 rpm : 1090...1105 Speed 2nd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1350 rom : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 6.5 Testing: : 200 Speed rpm Minimum rack trave: 7.80 : 300 rpin Rack travel in mm : 6.20...6.80 Rack travel in mm : 2.00 : 380...420 Speed rom TORQUE CONTROL Dimension a mm : 0.50 rpm : 1050 2nd speed Rack travel in m: 14.70...14.90 3rd speed rpm : 800 Rack travel in m: 15.20...15.40 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rpm hPa : 1000 Pressure Rack travel mm : 14.80...15.00 Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 11.00...11.20 2nd pressure hPa : 650 Rack travel in m: 13.80...14.00 3rd pressure hPa : 1200 Rack travel in m: 14.90...15.00 * 4th pressure hPa : -Rack travel in m: 11.10...11.40 START CUT-OUT

1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: 1500 Speed rpm : 1050 bet.quantity cm3/: 214.0...217.0 1000 s: (211.0...220.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1500 : 800 Speed rpm Del.quantity cm3/: 232.0...236.0 1000 s: (229.0...239.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/: 135.0...137.0
1000 s: (132.0...140.0) cm3 : 8.00Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.70 rpm : 1090...1105 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 210.0...230.0 1000 s: (206.0...234.0) Remarks: * Increase in control-rod travel with respect to setting at Least 0.1 mm

Speed

Note remarks

: MB 12,8 p : 27.03.92 Test sheet Edition : 11.91 Replaces : ISO-4113 Test oil

: 0 402 648 922 Combination no.

Injection pump

Pump designation : PE8P120A320LS7845 : 0 412 628 851 EP type number

Governor

: RQV350...1050PA866 Governor design.

-15

: 0 421 813 960 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M402 LA Engine

: 280.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzie holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 075 Test Lines

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.50...5.60 : (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.30...14.50

Del.quantity cm3/: 22.5...22.7

100 s: (22.2...23.0)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm : 4.8...5.4

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6

Spread 100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

: 1.30...1.80 travel mm

570 2nd speed rem

: 3.30...3.80 travel mm

: 900 3rd speed rpm : 5.40...5.90 travel mm

rpm : 1107 4th speed

: 7.80...8.30 travel mm

: 1204 5th speed rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1130 Speed

Rack travel in mm : 16.50...18.00

Rack travel in m: 13.00...13.20 FULL LOAD DELIV. AT FULL LOAD STOP 3rd pressure hPa : 1100 Rack travel in m: 14.40...14.50 * 1st version rpm : 600 4th pressure hPa : -Speed Rack travel in m: 9.50...9.80 Aneroid pressure h: 900 : 225.0...227.0 Del. quantity 1000 : (222.0...230.0) START CUT-OUT cm3 : 6.00Spread 1/min : 270 (290) 1000 : (9.00) Speed FUEL DELIVERY CHARACTERISTICS RATED SPEED 1st version 1st version Control lever Aneroid pressure h: 1500 position degrees: 118...126 : 1050 Speed rpm Del.quantity cm3/: 214.0...217.0 1000 s: (211.0...220.0) Testing: 1st rack travel in: 12.80 Speed rpm : 1090...1100 cm3 : 8.00 Spread 1000 s: (12.0) 2nd rack travel in: 4.00 Aneroid pressure h: 1500 rpm : 1170...1200 Speed : 800 4th rack travel in: 1250 Speed rpm Del.quantity cm3/: 232.0...236.0 1000 s: (229.0...239.0) Speed rpm : 0.00...1.00 cm3 : 3.00 LOW IDLE 1 Spread 1000 s: (12.0) Aneroid pressure h: 1500 Control lever position degrees: 62...70 rpm : 1050 Speed Del.guantity cm3/: 162.0...166.0 * Testing: 1000 s: (159.0...169.0) rpm : 200 Speed Minimum rack trave: 7.40 cm3 : 8.00 Spread 1000 s: (12.0) rpm : 350 Rack travel in mm : 4.80...5.40 Aneroid pressure h: -Speed rpm : 500 Del. quantity cm3/: 132.0...134.0 CONSTANT REGULATION 1000 s: (129.0...137.0) rpm : 350...550 Speed cm3 : 8.00Spread 1000 s: (12.0) TORQUE CONTROL Dimension a mm : 0.20 2nd speed rpm : 1050 **BREAKAWAY** Rack travel in m: 13.80...14.00 3rd speed rpm : 800 Rack travel in m: 14.40...14.60 1st version 1mm rack travel less than Aneroid/Altitude full load rack tr: 12.80 Compensator Test Speed rpm : 1090...1100 STARTING FUEL DELIVERY 1st version Setting ; 600 Speed rpm Speed rpm : 100 Del.quantity cm3/ : 230.0...250.0 1000 s: (226.0...254.0) hPa : 900 Pressure : 14.30...14.50 Rack travel mm Measurement Remarks: 1/min : 600 Speed 1st pressure hPa : 300 Rack travel in m: 10.30...10.50 * Increase in control-rod travel with respect to setting at least 0.1 mm 2nd pressure hPa : 600

* = Set at reduced-delivery stop.

Note remarks

Test sheet : MB

: 27.03.92 Edition

Replaces

: ISO-4113 Test oil

: 0 402 648 934 Combination no.

Injection pump

: PE8P120A320LS7823 Pump designation

EP type number : 0 412 628 835

Governor

Governor design. : RQV350...1050PA866

-21

: 0 421 813 996 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M442 LA Engine

: 353.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

: 8-7-2-6-3-5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm3/: 23.4...23.7

100 s: (23.1...24.0)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.0...5.6

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 1.40...1.60 travel mm

rpm : 800 2nd speed : 4.70...5.10 travel mm

: 1100 3rd speed rpm

: 7.60...8.20 travel mm

: 1175 4th speed rpm

: 9.20...9.80 travel mm

GUIDE SLEEVE POSITION

Control-Lever position

Degree: -1

rpm : 1150 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

Rack travel in m: 13.70...13.90 * 4th pressure hPa : 1250 Rack travel in m: 14.50...14.70 1st version rpm : 600 Speed Aneroid pressure h: 900 Del.quantity : 254.0...240.0) 5th pressure hba : -Rack travel in m: 10.10...10.40 cm3 : 5.00 1000 : (9.00) Spread START CUT-OUT 1/min: 270 (290) Speed RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 115...123 1st version Aneroid pressure h: 1600 Testing: Speed rpm : 1050 Del.quantity cm3/: 252.0...256.0 1st rack travel in: 13.40 Speed rpm : 1090...1100 1000 s: (249.0...259.0) 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1600 rpm : 0.00...1.00 Speed : 800 Speed rpm Del.quantity cm3/: 270.0...274.0 1000 s: (267.0...277.0) LOW IDLE 1 Control lever cm3 : 8.00position degrees: 62...70 Spread 1000 s: (12.0) Aneroid pressure h: 1600 Testing: Speed rpm : 1050
Del.quantity cm3/: 184.0...187.0 *
1000 s: (181.0...190.0) Speed rpm Minimum rack trave: 7.10 Speed rpm : 350 Rack travel in mm : 5.00...5.60 cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -CONSTANT REGULATION Speed rpm : 500 Del.quantity cm3/: 149.0...151.0 1000 s: (146.0...154.0) rpm : 350...550 Speed TORQUE CONTROL cm3 : 8.00 Dimension a mm : 0.50 Spread 1000 s: (12.0) 2nd speed rpm : 1050 Rack travel in m: 14.40...14.60 d speed rpm : 800 3rd speed rpm Rack travel in m: 15.30...15.50 **BREAKAWAY** 1st version Aneroid/Altitude 1mm rack travel less than Compensator Test full load rack tr: 13.40 rpm : 1090...1100 Speed 1st version Setting STARTING FUEL DELIVERY : 600 Speed rpm hPa : 900 Pressure : 13.60...13.80 Rack travel mm Speed rpm Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0) Measurement 1/min: 600 Speed Remarks: 1st pressure hPa : 350 Rack travel in m: 11.10...11.30 2nd pressure hPa : 500 Rack travel in m: 12.80...13.00 3rd pressure hPa : 1050 * Increase in control-rod travel with respect to setting at least 0.1 mm

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAN Test sheet : 20.03.92 Edition Replaces : ISO-4113 Test oil Phasing : 0 402 735 807 Combination no. Injection pump Pump designation : PES5P120A720/3LS7250 EP type number : 0 412 725 809 Governor : RQV325...1000PA960-9 Governor design. : 0 421 815 309 Governer no. Customer-spec. information Customer : D2865LF06/LU06 Engine : 235.0 1st version kW : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C Spread : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 105 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 : 1 680 750 089 Test Lines Outside diameter x Wall thickness : 8.00x2.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Prestroke mm : 4.80...4.90 : (4.75...4.95) Rack travel in mm : 15.00...16.00 : 1-3-5-4-2 Firing order : 0-72-144-216-288 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 5 BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 4.40...4.60 & maximum rack tra: 15.0...16.0 Difference ° CS : 1.75...3.25 BASIC SETTING rpm: 900 1st speed Rack travel in mm : 13.50...13.60 Del.quantity cm3/: 26.0...26.2 100 s: (25.7...26.5) cm3 : 0.5100 s: (0.9) rpm : 325.0 2nd speed Rack travel in mm : 5.9...6.3 Del.quantity cm3/ : 4.7.. 5.3 100 s: (4.4...5.6) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 10601st speed : 10.40...10.60 travel mm 2nd speed : 300 rpm : 1.90...2.10 travel mm : 450 3rd speed rpm 3.40...4.00 travel mm : 750 4th speed rpm : 6.80...7.20 travel mm : 1350 5th speed rpm : 13.00...14.00 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1115 Speed

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Rack travel in mm : 10.90...13.50 Measurement $1/\min : 900$ FULL LOAD DELIV. AT FULL LOAD STOP Speed 1st pressure hPa : -1st version Rack travel in m: 9.20...9.40 Speed rpm : 900 2nd pressure hPa : 170 Aneroid pressure h: 1200 Aneroid F. Del.quantity 1000 Rack travel in m: 9.60...9.70 : 260.0...262.0 3rd pressure hPa : 600 : (257.0...265.0) Rack travel in m: 12.00...12.40 : 5.00 Spread cm31000 : (9.00)START CUT-OUT RATED SPEED Speed 1/min : 245 (265) 1st version FUEL DELIVERY CHARACTERISTICS Control Leven position degrees: 296...304 1st version Testing: Aneroid pressure h: 1200 1st rack travel in: 12.20 rpm : 1000 rpm : 1040...1050 Speed Speed Del.quantity cm3/: 248.0...254.0 1000 s: (245.0...257.0) Aneroid pressure h: 1200 2nd rack travel in: 4.00 rpm : 1140...1170 Speed 4th rack travel in: 1350 : 650 rpm : 0.00...1.00Speed rpm Speed Del.quantity cm3/: 270.0...276.0 1000 s: (267.0...279.0) LOW IDLE 1 Aneroid pressure h: -Control lever Speed rpm : 500 Del.quantity cm3/: 159.0...161.0 1000 s: (156.0...164.0) position degrees: 253...261 Testina: Speed rrm Minimum rack trave: 7.60 rpm : 325 BREAKAWAY Rack travel in mm : 6.00...6.20 1st version 1mm rack travel less than CONSTANT REGULATION rpm : 270...340 Speed full load rack tr: 12.20 rpm : 1040...1050 Speed TORQUE CONTROL Dimension a mm STARTING FUEL DELIVERY Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 13.50...13.60 rpm : 100 : 1000 Speed 2nd speed rpm Del.quantity cm3/: 180.0...200.0 1000 s: (176.0...204.0) Rack travel in m: 13.10...13.30 rpm : 650 3rd speed Rack travel in m: 12.70...12.90 : 400 LOW IDLE 4th speed rom Rack travel in m: 11.90...12.20 rpm : 325 Speed Rack travel in mm : 5.90...6.30 Aneroid/Altitude Del.quantity cm3/: 47.0...53.0 1000 s: (44.0...56.0) Compensator Test : 8.00 Spread cm3 1000 s: (12.00) 1st version Setting Remarks: 900 Speed rom hPa : 1200 : MAN-NR. 3-7203 Pressure : 13.50...13.60

Rack travel mm

Setting and blocking of pointer of start-of-delivery sensor on cyl. 5 start of delivery

Note remarks

: CUM 5,9 w 2 Test sheet : 13.03.92 Edition Replaces : 02.92 : ISO-4113 Test oil

: 0 402 736 811 Combination no.

Injection pump

Pump designation : PES6P110A12ORS7213 : 0 412 716 804 EP type number

Governor

: RQV400...1250PA964-3 Governor design.

: 0 421 815 255 Governer no.

Customer-spec. information : C.D.C. Customer

: 6BTA-A Engine

: 147.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 115...125

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

Test pressure, bar: 22...24

BEGINNING OF DELIVERY

: 4.35...4.45 Prestroke mm

: (4.30...4.50) Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 14.80...14.90

Del.quantity cm3/: 15.8...16.0

100 s: (15.5...16.3)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 400.02nd speed

Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 3.2...3.8

100 s: (3.0...4.0)

cm3 : 0.8 Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 400 1st speed

: 1.60...1.80 travel mm

2nd speed rpm : 600

: 2.80...3.30 travel mm

rpm : 1300 3rd speed

travel mm : 7.20...7.40

: 1500 4th speed rpm

: 8.90...9.30 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed Aneroid pressure h: 1200

: 158.5...160.5 : (155.5...163.5) Del.quantity

1000

: 5.00 cm3 Spread 1000 : (9.00)

c08

RATED SPEED

1st version Control Lever

position degrees: 56...64

Testina:

1st rack travel in: 13.80

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

rpm : 1460...1490 Speed

4th rack travel in: 1600

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 12...20

Testing:

Speed rpm : 275 Minimum rack trave: 7.20 : 400 rpm Speed

Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 14.80...14.90

2nd speed rpm : 800

Rack travel in m: 13.20...13.40

Aneroid/Altitude Compensator Test

1st version

Settina

: 1250 Speed rom hPa : 1200 Pressure

: 14.80...14.90 Rack travel mm

Measurement

1/min: 1250 Speed

1st pressure hPa : -

Rack travel in m: 8.20...8.60
2nd pressure hPa : 365
Rack travel in m: 10.60...10.70

3rd pressure hPa : 690

Rack travel in m: 13.70...14.10

START CUT-OUT

1/min: 290 (300) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 800 Del.quantity cm3/: 156.5...162.5 1000 s: (153.5...165.5)

cm3 : 8.00Spread

1000 s: (12.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 90.0...94.0

1000 s: (88.0...96.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...175.0 1000 s: (130.0...180.0)

Rack travel in mm : 11.90...12.90

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 32.0...38.0

1000 s: (30.0...40.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

: C.D.C. # 3918321

Start-of-delivery mark = 5.5° after

start of delivery cyl. 1.

Note remarks

Test sheet : RVI 6,2 h : 03.04.92 Edition : 10.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 746 883

Injection pump

Pump designation : PES6P110A320RS7198 : 0 412 716 802 EP type number

Governor

: RQV275...1250PA942K Governor design.

: 0 421 815 234 Governer no.

Customer-spec. information Customer : RVI

: MIDRO6-06-26 Engine

: 132.5 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 089

Outside diameter x Wall thickness

: 8.00x2.50x600 x Lenath mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.60...4.70 Prestroke mm : (4.55...4.75)

Rack travel in mm : 12.50...13.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 14.10...15.10 & maximum rack tra: 20.0...21.0 Difference * CS : 2.50...4.00

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 14.60...14.70

Del.quantity cm3/: 15.7...15.9

100 s: (15.4...16.1)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 275.0 2nd speed

Rack travel in mm: 4.9...5.3 Del.quantity cm3/: 1.7...2.2

100 s: (1.4...2.4)

cm3 : 0.4Spread 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1300 1st speed

: 9.50...9.70 travel mm

rpm : 275 2nd speed

: 0.90...1.10 travel mm

: 550 3rd speed rom

: 3.80...4.20 : 1000 travel mm

4th speed rpm : 7.10...7.50

travel mm rpm : 1600 5th speed

: 13.00...14.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1385 Speed Rack travel in mm : 12.30...14.90

FULL LOAD DELIV. AT FULL LOAD STOP

C10

2nd pressure hPa : 360 1st version Rack travel in m: 12.80...12.90 3rd pressure hPa : 220 rpm : 1250 Speed Aneroid pressure h: 1000 Del.quantity : 157.0....161.5) Rack travel in m: 11.80...12.20 cm3 : 4.00 1000 : (7.50) START CUT-OUT Spread 1/min : 200 (220) Speed RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever 1st version position degrees: 110...118 Aneroid pressure h: 1000 Speed rpm : 750
Del.quantity cm3/: 122.0...126.0
1000 s: (119.0...129.0) Testing: 1st rack travel in: 13.60 rpm : 1315...1325 Speed 2nd rack travel in: 4.00 Aneroid pressure h: rpm : 500 Speed rpm : 1475...1505 Speed Del.quantity cm3/: 67.0...69.0 1000 s: (64.5...71.5) 4th rack travel in: 1600 rpm : 0.00...1.00 Speed LOW IDLE 1 BREAKAWAY Control Lever position degrees: 58...66 1st version Testing: Speed COM Minimum rack trave: 5.70 Speed rpm: 275 Speed Rack travel in mm : 5.00...5.20 CONSTANT REGULATION rpm : 350...480 Speed Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1250 LOW IDLE Rack travel in m: 14.60...14.70 2nd speed rpm : 750 Speed rpm Rack travel in m: 13.70...13.90 3rd speed rpm : 300 Rack travel in m: 12.90...13.30 Spread Aneroid/Altitude Compensator Test Remarks: 1st version Setting Speed : 1250 **CDW** start of delivery hPa : 1000 Pressure : 14.60...14.70 Rack travel mm Measurement Speed $1/\min : 1250$ 1st pressure hPa : -

1mm rack travel less than full load rack tr: 13.60 rpm : 1315...1325 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 85.0...115.0 1000 s: (81.0...119.0) : 275 Rack travel in mm : 4.90...5.30 Del.quantity cm3/: 17.0...22.0 1000 s: (14.5...24.5) cm3 : 4.50 1000 s: (7.50) Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

Rack travel in m: 11.20...11.60

Note remarks

: RVI 6,2 L Test sheet : 13.03.92 Edition : 12.91 Replaces : ISO-4113 Test oil

: 0 402 746 924 Combination no.

Injection pump

Pump designation : PES6P110A320RS7243 : 0 412 716 806

EP type number

Governor

: RQV275...1250PA942-2 Governor design.

: D 421 815 288 Governer no.

Customer-spec, information Customer : RVI

: MIDRO6-06-26 L/2 Engine

: 132.5 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _ _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.85...4.95 Prestroke mm

: (4.80...5.00)

Rack travel in mm : 13.00...14.00

Firing order

: 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 13.00...13.10 & maximum rack tra: 20.0...21.0 Difference ° CS : 1.00...2.50

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 14.0...14.2

100 s: (13.7...14.4)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 275.0 2nd speed Rack travel in mm: 5.2...5.6 Del.quantity cm3/: 2.4...2.8

100 s: (2.4...2.8) cm3 : 0.4

Spread 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1320 1st speed rpm :

9.70...9.90 travel mm 275 2nd speed rpm

0.90...1.10 travel mm

600 3rd speed rpm : 4.20...4.60

travel mm 1000 4th speed rpm :

: 7.00...7.40 travel mm

: 1600 5th speed rpm

: 13.00...14.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1450 Speed

Speed $1/\min : 1250$ Rack travel in mm : 8.80...11.40 FULL LOAD DELIV. AT FULL LOAD STOP 1st pressure hPa : -Rack travel in m: 10.10...10.30 2nd pressure hPa : 435 1st version Rack travel in m: 12.20...12.30 3rd pressure hPa : 250 Speed rpm: 1250 Aneroid pressure h: 1000 Rack travel in m: 11.00...11.40 : 140.0...142.0 Deliquantity 1000 : (137.5...144.5) START CUT-OUT cm3 : 4.00Spread 1000 : (7.50)1/min: 200 (220) Speed RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control Lever position degrees: 272...280 1st version Aneroid pressure h: 1000 Speed rpm : 650 Del.quantity cm3/: 124.5...128.5 1000 s: (124.5...128.5) Testing: 1st rack travel in: 12.00 rpm : 1320...1330 Aneroid pressure h: -2nd rack travel in: 4.00 rpm_ : 500 rpm : 1465...1495 Speed Speed Del.quantity cm3/: 79.0...81.0 1000 s: (76.5...83.5) Spread cm3 : 10.00 4th rack travel in: 1600 rpm : 0.00...1.00 Speed 1000 s: (14.0) LOW IDLE 1 Control lever position degrees: 218...226 **BREAKAWAY** Testina: 1st version Speed : 200 (COM 1mm rack travel less than Minimum rack trave: 6.00 rpm : 275 Rack travel in mm : 5.30...5.50 full load rack tr: 12.00 rpm : 1320...1330 Speed CONSTANT REGULATION rpm : 350...480 STARTING FUEL DELIVERY Speed TORQUE CONTROL Speed rpm : 100 Del.quantity cm3/ : 100.0...120.0 1000 s: (96.0...124.0) Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 13.00...13.10 2nd speed rpm : 650 LOW IDLE Rack travel in m: 11.90...12.10 3rd speed rpm : 300 Rack travel in m: 11.20...11.60 Speed rpm : 275
Rack travel in mm : 5.20...5.60
Del.quantity cm3/ : 24.0...28.0
1000 s: (24.0...28.0) Aneroid/Altitude cm3 : 4.50Spread Compensator Test 1000 s: (7.50) Remarks: 1st version Setting : 1250 Speed rpm Setting and blocking of pointer of hPa : 1000 Pressure start-of-delivery sensor on cyl. 1 : 13.00...13.10 Rack travel mm start of delivery Measurement

: 4.70...4.80 Prestroke mm BOSCH INJ. PUMP TEST SPECIFICATIONS : (4.65...4.85) Rack travel in mm : 18.00...21.00 Note remarks : 6-2-4-1-5-3 Firing order : MAN Test sheet : 22.01.92 Edition Replaces : 0-60-120-180-240-300 Test oil : ISO-4113 Phasina : 0.50 (0.75) Tolerance + - ° Combination no. : 0 402 746 925 Injection pump Time to cyl. no. : 6 Pump designation : PES6P120A720LS7244 : 0 412 726 857 BASIC SETTING EP type number Governor Governor design. : RQ750PA981-1 1st speed rpm: 700 : 0 421 801 622 Governer no. Rack travel in mm: 14.30...14.40 Customer-spec, information Del.quartity cm3/: 33.9...34.1 : MAN Customer 100 s: (33.6...34.4) : D2866 LXE Engine cm3 : 0.5: 300.0 Spread 1st version kW : 1500 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 300.0 2nd speed Rack travel in mm: 4.4...4.8 Test oil Del.quantity cm3/: 2.0...2.6 inlet temp. °C : 38...42 100 s: (1.7...2.9) cm3 : 0.8 Overflow valve Spread 100 s: (1.2) : 1 417 413 025 FULL LOAD DELIV. AT FULL LOAD STOP Inlet press., bar: 1.50 1st version Test nozzle holder : 1 688 901 105 Speed rpm : 700 assembly : 339.0...341.0 Del.quantity 1000 : (336.0...344.0) Opening : 5.00 : 207...210 cm3 Spread pressure, bar 1000 : (9.00) Orifice plate RATED SPEED : 0,8 diameter mm 1st version Control lever : 1 680 750 015 Test lines position degrees: ?...0 Outside diameter x Wall thickness Testing: 1st rack travel in: 13.30 Speed rpm : 750...755 : 6.00X1.50X600 x Length mm 2nd rack travel in: 4.00 (A) Injection pump setting values rpm : 788...801

Speed

Speed

4th rack travel in: 950

SET IDLE AUXILIARY SPRING

Rack travel in mm: 5.50

rpm : 0.00...1.00

Insp. values in parentheses

Set equal delivery quant.

per values

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.30 Speed rpm : 750...755

Remarks:

: MAN-NR. 3-7183

Setting and blocking of pointer of start-of-delivery sensor on cyl. 6 start of delivery

APPLICATION

Generator set

Note remarks

: RVI 6,2 L 1 Test sheet Edition : 13.03.92

: 01.92 Replaces : ISO-4113 Test oil

: 0 402 746 928 Combination no.

Injection pump

Pump designation : PES6P110A320RS7243

: 0 412 716 806 EP type number

Governor

Governor design. : RQV275...1175PA942-3

: 0 421 815 294 Governer no.

Customer-spec. information : RVI Customer

: MIDRO6-06-26 M/2 Engine

: 132.5 1st version kW : 2350 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet tamp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.85...4.95 : (4.80...5.00) Rack travel in mm : 13.00...14.00 Firing order : 1-5-3-6-2-4

Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 13.40...13.50 & maximum rack tra: 20.0...21.0 Difference ° CS : 1.00...2.50

BASIC SETTING

1st speed rpm: 1175

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 15.2...15.4

100 s: (14.9...15.6)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 275.0 2nd speed Rack travel in mm : 4.8...5.2 Del.quantity cm3/: 2.3...2.7

100 s: (2.3...2.7)

cm3 : 0.4 100 s: (0.7) Spread

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 1250 : 9.10...9.30 travel mm

rpm : 275 2nd speed : 0.90...1.10 travel mm

rpm : 600 3rd speed

: 4.20...4.60 travel mm

rpm : 1000 4th speed

: 7.00...7.40 travel mm

rpm : 1600 5th speed

: 13.00...14.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1450 Speed

Rack travel in mm: 8.80...11.40 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rom : 1175 Aneroid pressure h: 1000 Anerou ... Deloquantity 1000 : 152.0...154.0 : (149.5...156.5) : 4.CO Spread cm3 1000 : (7.50) RATED SPEED 1st version Control Lever position degrees: 290...298 Testing: 1st rack travel in: 12.40 rpm : 1245...1255 2nd rack travel in: 4.00 Speed rpm : 1415...1445 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 238...246 Testing: : 200 Speed rpm Minimum rack trave: 6.20 rpm : 275 Speed Rack travel in mm : 4.90...5.10 CONSTANT REGULATION rpm : 350...480 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1175 Rack travel in m: 13.40...13.50 2nd speed rpm : 700 Rack travel in m: 12.50...12.70 3rd speed rpm : 300 Rack travel in m: 11.70...12.10 Aneroid/Altitude Compensator Test 1st version Setting : 1175 Speed rpm hPa : 1000 Pressure : 13.40...13.50 Rack travel mm

1/min: 1175 Speed 1st pressure hPa : -Rack travel in m: 9.90...10.10 2nd pressure hPa : 420 Rack travel in m: 11.65...11.75 3rd pressure hPa : 240 Rack travel in m: 10.60...10.80 START CUT-OUT 1/min : 200 (220) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 700 Del.quantity cm3/ : 149.0...153.0 1000 s: (146.0...156.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 79.0...81.0 1000 s: (76.5...83.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.40 rpm : 1245...1255 Speed STARTING FUEL DELIVERY Speed rpm Del.quantity cm3/: 100.0...120.0 1000 s: (96.0...124.0) LOW IDLE Speed rpm : 275 Rack travel in mm : 4.80...5.20 Del.quantity cm3/: 23.0...27.0 1000 s: (23.0...27.0) cm3 : 4.50Spread 1000 s: (7.50) Remarks: Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

Test sheet : MB6,1I : 27.03.92 Edition : 02.92 Replaces Test oil : ISO-4113

Combination no. : 0 403 246 031

Injection pump

Pump designation : PES6MW100/720RS1515 : 0 413 206 013 EP type number

Governor

Governor design. : RQV300...1300Mw125-1

: 0 420 083 258 Governer no.

Customer-spec. information : MB-NFZ Customer

: 0M366LA Engine

: 127.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 089 Test Lines

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 5.20...5.30 Prestroke mm : (5.15...5.35) Rack travel in mm : 21.00...0.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 13001st speed

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 10.8...11.0

100 s: (10.6...11.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 4.2...4.4 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6) cm3 : 0.3

Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed

: 8.00...8.40 travel mm

rpm : 960 2nd speed

: 5.40...5.60 travel mm

rpm : 600 3rd speed : 3.20...3.80 travel mm

rpm : 300 4th speed : 0.90...1.30

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1380 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

travel mm

rpm : 1300 Speed Aneroid pressure h: 1000

: 108.0...110.0 Del.quantity

1000 : (106.0...112.0)

: 3.50 Spread cm3

1000 : (6.00)

1st version Control lever position degrees: 108...116 Testina: 1st rack travel in: 11.40 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1430...1460 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring : 300 man Rack travel in mm: 4.3 Testina: : 200 Speed rpm Minimum rack trave: 5.00 rpm : 300 Rack travel in mm : 4.20...4.40 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : -Pressure Rack travel mm : 9.70...9.90 Measurement $1/\min : 500$ Speed 1st pressure hPa : 300 Rack travel in m: 10.70...10.90 2nd pressure hPa : 500 Rack travel in m: 12.00...12.20 3rd pressure hPa : 1000 Rack travel in m: 12.40...12.50 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 750 Del.quantity cm3/: 99.0...102.0 1000 s: (96.5...104.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 43.0...45.0
1000 s: (41.0...47.0)

1st version 1mm rack travel less than full load rack tr: 11.40 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 115.0...125.0 1000 s: (112.0...128.0)

LOW IDLE

Remarks:

C19

Note remarks

Test sheet : MB 6,1 I 1 : 27.03.92 Edition Replaces : 02.92

: ISO-4113 Test oil

Combination no. : 0 403 246 032

Injection pump

Pump designation : PES6MW100/720RS1515

: 0 413 206 013 EP type number

Governor

Governor design. : RQV300...1300MW125-2

: 0 420 083 259 Governer no.

Customer-spec. information : MB-NFZ Customer

Engine : 0M366LA

: 142.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test cil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 089 Test lines

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 21.00...0.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 10.8...11.0

100 s: (10.6...11.2)

cm3 : 0.3Spread

100 s: (0.6)

rom : 300.0 2nd speed Rack travel in mm: 4.2...4.4 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed : 8.00...8.40

travel mm rpm : 960

2nd speed

: 5.40...5.60 travel mm : 500

3rd speed mar : 3.20...3.80 travel mm

: 300 4th speed rpm

travel mm : 0.80...1.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1380 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1300 Aneroid pressure h: 1100

: 108.0...110.0 Del.quantity

1000 : (106.0...112.0)

: 3.50 cm3 Spread

1000 : (6.00)

1st version Control lever

position degrees: 108...116

Testina:

1st rack travel in: 11.40

rpm : 1340...1350 Speed

2nd rack travel in: 4.00

rpm : 1430...1460 Speed

4th rack travel in: 1550

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 68...76

Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 4.3

Testing:

Speed : 200 rpm Minimum rack trave: 5.00 : 300 rpm

Rack travel in mm : 4.20...4.40

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rom hPa : -Fressure

: 9.60...9.80 Rack travel mm

Measurement

1/min : 500Speed

1st pressure hPa : 300

Rack travel in m: 10.70...10.90

2nd pressure hPa : 500 Rack travel in m: 12.00...12.20

3rd pressure hPa : 1100

Rack travel in m: 12.40...12.50

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100

Speed rpm : 750 Del.quantity cm3/ : 99.0...102.0

1000 s: (96.5...104.5)

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 41.0...43.0

1000 s: (39.0...45.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 115.0...125.0

1000 s: (112.0...128.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 4.20...4.40 Del.quantity cm3/: 10.0...14.0

1000 s: (7.5...16.5)

cm3 : 3.50 Spread

1000 s: (5.50)

:

Remarks:

C21

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : 27.03.92 Edition : 02.92 Replaces : ISO-4113 Test oil

: 0 403 246 033 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1511

: 0 413 206 011 EP type number

Governor

: RQV300...1300MW125 Governor design.

: 0 420 083 257 Governer no.

Customer-spec. information Customer : MB-NFZ

Engine : 0M366LA

: 156.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

Test Lines : 1 680 750 089

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 5.20...5.30 Prestroke mm : (5.15...5.35)

Rack travel in mm : 21.00...0.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 12.60...12.70

Del.guantity cm3/: 11.8...12.0

100 s: (11.6...12.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm : 4.1...4.3 Del.guantity cm3/: 1.0...1.4 100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed

: 8.00...8.40 travel mm : 960 2nd speed rpm

: 5.40...5.60 travel mm : 600

3rd speed rpm : 3.20...3.80 travel imi

: 300 4th speed rpm

: 0.90...1.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1380 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 1100

: 118.0...120.0 Del.quantity 1000 : (116.0...122.0)

: 3.50 cm3 Spread

1000 : (6.00)

1st version Control lever position degrees: 108...116 Testing: 1st rack travel in: 11.60 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1435...1465 4th rack travel in: 1550 rom : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 4.2 Testing: : 200 Speed rpm Minimum rack trave: 5.00 : 300 COM Rack travel in mm : 4.10...4.30 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed וחכורו hPa : -Pressure : 7.10...7.20 Rack travel min Measurement 1/min: 500 Speed 1st pressure hPa : 300 Rack travel in m: 8.80...9.00 2nd pressure hPa : 500 Rack travel in m: 10.10...10.30 3rd pressure hPa : 1100 Rack travel in m: 12.60...12.70 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version

Speed rpm : 500 Del.quantity_cm3/ : 41.0...43.0 1000 s: (39.0...45.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.60 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 115.0...125.0 1000 s: (112.0...128.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 4.10...4.30 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks:

C23

Speed

Spread

Aneroid pressure h: 1100

Aneroid pressure h: -

rpm : 750 Del.quantity cm3/: 111.5...114.5

cm3 : 5.00

1000 s: (7.0)

1000 s: (109.0...117.0)

: 3.30...3.40 : (3.25...3.45) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 12.00...14.00 Note remarks : 1-3-4-2 Firing order : PER 5,8 D Test sheet : 20.03.92 Edition : 02.92 Replaces : 0-90-180-270 : ISO-4113 Phasina Test oil Tolerance $+ - \circ : 0.50 (0.75)$ Combination no. : 0 403 444 119 Time to cyl. no. : 1 Injection pump Pump designation : PES4MW100/320RS1199 EP type number : 0 413 404 112 BASIC SETTING Governor Governor design. : RQV300...1300MW110K Governer no. : 0 420 083 996 rpm: 1300 1st speed Rack travel in mm: 13.00...13.10 Customer-spec. information Del.quantity cm3/: 12.4...12.6 : PERKINS Customer 100 s: (12.2...12.8) : 110 TI Engine cm3 : 0.3: 82.0 Spread 1st version kW : 2600 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 300.0 2nd speed Rack travel in mm : 6.1...6.3 Del.quantity cm3/ : 1.6...2.0 Test oil inlet temp. °C : 38...42 100 s: (1.3...2.2) cm3 : 0.3Overflow valve Spread 100 s: (0.5) : 1 419 992 198 (B) Setting of injection pump Inlet press., bar: 1.50 with governor Test nozzle holder : 1 688 901 101 GUIDE SLEEVE TRAVEL assembly rpm : 1350 1st speed : 10.00...10.40 travel mn Cpening . rpm : 900 : 207...210 2nd speed pressure, bar : 6.40...6.60 travel mm rpm : 480 3rd speed Orifice plate : 3.10...3.70 travel mm : 0,6 diameter mm rpm : 300 4th speed : 1.40...1.80 travel mm : 1 680 750 008 Test lines GUIDE SLEEVE POSITION Control-lever position Outside diameter Degree: -1 x Wall thickness rpm : 1380 : 6.00x2.00x600 x Length mm Rack travel in mm : 15.20...17.80 (A) Injection pump setting values FULL LOAD DELIV. AT FULL LOAD STOP Insp. values in parentheses Set equal delivery quant. 1st version per values ____

rpm : 1300

Del.quantity : 124.0...126.0 1000 : (122.0...128.0)

Aneroid pressure h: 900

Speed

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

cm3 : 3.50 Spread 1000 : (6.00)RATED SPEED 1st version Control Lever position degrees: 116...124 Testing: 1st rack travel in: 12.00 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1450...1480 4th rack travel in: 1550 Speed rom : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 66...74 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.2 Testing: rpm: : 200 Speed Minimum rack trave: 7.50 rpm : 300 Rack travel in mm : 6.10...6.30 CONSTANT REGULATION rpm : 330...500 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 13.00...13.10 2nd speed rpm : 800 Rack travel in m: 12.00...12.20 d speed rpm : 500 3rd speed Rack travel in m: 10.30...10.50 4th speed rpm : 1000 Rack travel in m: 12.40...12.70 5th speed rpm : 400 Rack travel in m: 9.90.. 10.20 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1300 rom Pressure hPa : -Rack travel mm : 9.60...9.70

Rack travel in m: 9.80...9.90 2nd pressure hPa : 180 Rack travel in m: 10.80...11.10 3rd pressure hPa : 900 Rack travel in m: 13.00...13.10 START CUT-OUT 1/min: 240 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 rpm Speed Del.quantity cm3/: 118.0...121.0 1000 s: (115.5...123.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 77.0...79.0 1900 s: (75.0...81.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.00 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 70.0...80.0 1000 s: (67.0...83.C) Rack travel in mm: 19.00...21.00 LOW IDLE rpm : 300 Speed Rack travel in mm : 6.10...6.30 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Start-of-delivery blocking 46.5° before start of delivery of cylinder 1

Measurement

Speed

1/min: 1300

1st pressure hPa : 130

Note remarks

Test sheet : VOL : 20.03.92 Edition Replaces : 02.92 : ISO-4113 Test oil

Combination no. : 0 403 444 135

Injection pump

Pump designation : PES4MW100/320RS1223

EP type number : 0 413 404 119

Governor

: RQV300...1100MW122-1 Governor design.

: 0 420 083 990 Governer no.

Customer-spec. information Customer : VME

Engine : TD45E

: 92.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 173...176

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10

: (2.95...3.15)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2

Firing order

: 0-90-180-270 Phasina

: 0.50 (0.75) Tolerance + - °

BASIC TETTING

rpm: 1100 1st speed

Rack travel in nm : 14.70...14.80

Del.quantity cm3/: 12.8...13.0

100 s: (12.6...13.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/ : 2.8...3.2

100 s: (2.5...3.4) cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1145 1st speed

: 10.00...10.40 travel mm

rpm : 800 2nd speed

: 6.10...6.30 travel mm rpm : 500 3rd speed

: 3.40...4.00 travel mm

: 300 4th speed rpm : 1.50...1.90 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 750

: 128.0...130.0 Del.quantity

1000 : (126.0...132.0) : 3.50 cm3 Spread

: (6.00) 1000

RATED SPEED

1st version Control lever

position degrees: 116...124

Testing:

1st rack travel in: 13.70 rom : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1250...1280 Speed 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 68...76 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 6.1 Testing: rpm : 200 Speed Minimum rack trave: 7.50 : 300 rpm Rack travel in mm : 6.00 ... 6.20 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 14.70...14.80 : 380 and speed ripin Rack travel in m: 15.00...15.10 3rd speed rpm : 550 Rack travel in m: 14.20...14.30 4th speed rpm : 750 Rack travel in m: 14.70...14,80 Aneroid/Altitude Compensator Test 1st version Setting : 550 Speed MCC hPa : -Pressure : 12.80...12.90 Rack travel mm Measurement 1/min : 550Speed 1st pressure hPa : 220 Rack travel in m: 13.10...13.20 2nd pressure hPa : 370 Rack travel in m: 13.60...13.90
3rd pressure hPa : 750 Rack travel in m: 14.20...14.30 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version

Speed rpm : 880 Del.quantity cm3/: 135.5...138.5 1000 s: (133.0...141.0) cm3 : 5.50Spread 1000 s: (7.0) Aneroid pressure h: rpm_ : 550 Speed Del.quantity cm3/: 86.0...88.0 1000 s: (84.0...90.0) RACK STOP ADJUSTMENT rpm : 100 Speed **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.70 rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 145.0...155.0 1000 s: (142.0...158.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 28.0...32.0
1000 s: (25.5...34.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

Aneroid pressure h: 750

Note remarks

Test sheet

: 20.03.92 **Fdition** Replaces : 02.92 : ISO-4113 Test oil

: 0 403 444 137 Combination no.

Injection pump

Pump designation : PES4MW100/720RS1212

EP type number : 0 413 404 114

Governor

Governor design. : RQV300...1300MW50-23

: 0 420 083 269 Governer no.

Customer-spec. information Customer : MI-NF/

: 0M364LA Engine

1st version kW : 102.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3,70...3.80

: (3.65...3.85) Rack travel in mm : 9.00...12.00

: 1-3-4-2 Firing order

: 0-90-180-270 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 13.10...13.20

Del.guantity cm3/: 10.1...10.3

100 s: (9.9...10.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.3...6.5 Del.quantity cm3/: 1.0...1.4 1**0**0 s: (0.7...1.6)

cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1450 1st speed

: 9.40...10.00 travel mm

rpm : 1350 2nd speed

: 8.50...8.70 travel mm : 500

3rd speed rpm

: 2.70...3.30 travel mm

rpm : 300 4th speed

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1350 Speed

Rack travel in mm : 15,20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 101.0...105.0)

: 3.50 Spread cm3

1000 : (6.00)

1st version Control lever position degrees: 108...116 Testing: 1st rack travel in: 12.10 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1450...1480 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 71...79 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.4 Testing: Speed rpm : 200 Minimum rack trave: 8.00 Speed rpm : 300 Rack travel in mm : 6.30...6.50 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : -Pressure : 9.80...10.00 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 200 Rack travel in m: 10.90...11.10 2nd pressure hPa : 400 Rack travel in m: 12.60...12.80 3rd pressure hPa : 700 Rack travel in m: 13.20...13.30 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 600 Del.quantity cm3/: 86.0...89.0 1000 s: (83.5...91.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -

Speed rpm: 500
Del.quantity cm3/: 36.0...38.0
1000 s: (34.0...40.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.10
Speed rpm: 1340...1350

STARTING FUEL DELIVERY

Speed rpm: 100
Del.quantity cm3/: 85.0...95.0
1000 s: (82.0...98.0)

LOW IDLE

Speed rpm: 300
Rack travel in mm: 6.30...6.50
Del.quantity cm3/: 10.0...14.0

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : 20.03.92 Edition : 02.92 Replaces : ISO-4113 Test oil : 0 403 444 138 Combination no. Injection pump Pump designation : PES4MW100/720RS1151 : 0 413 404 104 EP type number Governor Governor design. : RQV300...1300MW50-27 : 0 420 083 273 Governer no. Customer-spec. information : MB-NFZ Customer : 0M364A Engine : 79.0 1st version kW : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil : 38...42 inlet temp. °C Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 089 Outside diameter x Wall thickness : 8.00x2.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.70...3.80 Prestroke mm : (3.65...3.85) Rack travel in mm : 9.00...12.00 DO2

: 1-3-4-2 Firing order : 0-90-180-270 Phasing : 0.50 (0.75) Tolerance + - ° BASIC SETTING rpm : 13001st speed Rack travel in mm : 10.80...10.90 Del.quantity cm3/: 8.2...8.4 100 s: (8.0...8.6) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.02nd speed Rack travel in mm: 6.3...6.5 Del.guantity cm3/: 1.0...1.4 100 s: (0.7...1.6) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1450 1st speed : 9.40...10.00 travel mm 2nd speed : 1350 rpm : 8.50...8.70 travel mm 500 3rd speed rpm : 2.70...3.30 travel mm 4th speed : 300 rpm : 1.20...1.60 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1350 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1300 Speed Aneroid pressure h: 700 : 82.0...84.0 Del.quantity 1000 : (80.0...86.0) : 3.50 Spread cm3 1000 : (6.00)

1st version Control lever position degrees: 110...118 Testing: 1st rack travel in: 9.80 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1420...1450 Speed 4th rack travel in: 1500 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 74...82 Setting point w/out bumper spring rom: 300 Rack travel in mm: 6.4 Testing: : 200 Speed man Minimum rack trave: 8.00 : 300 rpm Rack travel in mm : 6.30...6.50 TORQUE CONTROL Dimension a mm : 0.80 Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 10.80...10.90 2nd speed rpm : 600 Rack travel in m: 11.60...11.70 d speed rpm : 1000 3rd speed Rack travel in m: 11.60...11.70 rpm : 1175 4th speed Rack travel in m: 11.30...11.50 Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed rom hPa : Pressure : 9.70...9.80 Rack travel mm Measurement Speed $1/\min : 500$ 1st pressure hPa : 200 Rack travel in m: 10.70...10.90 2nd pressure hPa : 300 Rack travel in m: 11.30...11.50 3rd pressure hPa : 700 Rack travel in m: 11.60...11.80 START CUT-OUT

1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 700 rpm : 600 Speed

Del.quantity cm3/: 75.0...78.0 1000 s: (72.5...80.5) Spread cm3 : 5.00

1000 s: (7.0) Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 46.0...48.0 1000 s: (44.0...50.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.80

rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 78.0...88.0

1000 s: (75.0...91.0)

LOW IDLE

: 300 Speed rpm

Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

Speed

Note remarks

: MB 6,0 D 65 Test sheet : 13.03.92 Edition

Replaces : 03.91 Test oil : ISO-4113

Combination no. : 0 403 446 259

Injection pump

Pump designation : PES6MW100/720RS1131-

EP type number : 0 413 406 165

Governor

Governor design. : RQV300...1300MW68-2

: 0 420 083 224 Governer no.

Customer-spec. information : MB-NFZ Customer

: OM366LA Engine

: 177.0 1st version kW Rated speed : 2600

YEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Lenath mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.60...3.70 Prestroke mm

: (3.55...3.75)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 11.4...11.6

100 s: (11.2...11.8)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm : 6.4...6.6 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1450 1st speed

: 9.40...9.80 travel mm

rpm : 1350 2nd speed travel mm

: 8.40...8.60 rpm : 600 3rd speed

: 3.90...4.50 travel mm rpm : 300 4th speed

: 0.80...1.20 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1350 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 1000

: 114.0...116.0 Del.quantity

1000 : (112.0...118.0)

: 3.50 Spread cm3

1000 : (6.00)

1st version Control lever position degrees: 116...124 Testing: 1st rack travel in: 13.40 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1480...1510 Speed 4th rack travel in: 1600 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 78...86 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 6.5 Testina: rpm : 200 Speed Minimum rack trave: 8.00 rpm : 300 Rack travel in mm : 6.40...6.60 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : -Pressure : 10.80...10.90 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 200 Rack travel in m: 11.50...11.70 2nd pressure hPa : 400 Rack travel in m: 13.30...13.50 3rd pressure hPa : 1000 Rack travel in m: 14.40...14.50 START CUT-OUT Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

rpm : 750

Del.quantity cm3/: 106.5...109.5 1000 s: (104.0...112.0) cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: 1000

Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 41.0...43.0 1000 s: (39.0...45.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.40 rpm : 1340...1350 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 100.0...110.0 1000 s: (97.0...113.0) LOW IDLE rpm : 300 Speed Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks:

1st version

Speed

Spread

Note remarks

Test sheet : MMM 6,2 F Edition : 03.04.92 : 10.91 Replaces : ISO-4113 Test oil

Combination no. : 0 403 446 281

Injection pump

Pump designation : PES6MW100/720RS1217

: 0 413 405 207 EP type number

Governor

Governor design. : RQ300/1000MW116 : 0 420 082 056 Governer no.

Customer-spec, information Customer : MM

: TBD2268-6 Engine

: 150.0 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 740 014 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 4.00...4.10 Prestroke mm

: (3.95...4.15) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 14.4...14.6

100 s: (14.2...14.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 7.0...7.2

Del.quantity cm3/: 1.1...1.5 100 s: (0.8...1.7)

cm3 : 0.3

Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1100 1st speed

: 7.30...7.70 travel mm

rpm : 1000 2nd speed

: 5.90...6.10 travel mm

: 370 3rd speed rpm

: 4.70...5.30 travel mm

300 4th speed rpm

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108 rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 1200

Del.quantity

: 144.0...146.0 1000 : (142.0...148.0)

: 3.50 Spread cm3

1000 : (6.00)

1st version Control lever

position degrees: 91...99

Setting point:

Speed rpm: 600 Rack travel in mm: 20.0

Testina:

1st rack travel in: 11.50 Speed rpm : 1040...1055

2nd rack travel in: 4.00

rpm : 1145...1175 Speed

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 74...82

Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.1

Testina:

rpm : 200 Speed Minimum rack trave: 8.50

Speed rpm : 300 Rack travel in mm : 7.00...7.20

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed L Dui

hPa : -Pressure

: 8.80...8.90 Rack travel mm

Measurement

1/min : 500 Speed

1st pressure hPa : 300

Rack travel in m: 9.50...9.70

2nd pressure hPa : 650

Rack travel in m: 11.60...11.80

3rd pressure hPa : 1200

Rack travel in m: 12.50...12.60

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 rpm : 750 Speed

Del.quantity cm3/: 143.5...146.5

1000 s: (141.0...149.0)

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 64.0...66.0

1000 s: (62.0...68.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

rpm : 1040...1055 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 95.0...105.0 1000 s: (92.0...108.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.00...7.20
Del.quantity cm3/ : 11.0...15.0

1000 s: (8.5...17.5)

Spread

cm3 : 3.50 1000 s: (5.50)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar

atmospheric pressure.

Note remarks

: RVI 6,2 J 1 Test sheet : 13.03.92 Edition : 12.91 Replaces

: ISO-4113 Test oil

Combination no. : 0 403 446 291

Injection pump

Pump designation : PES6MW100/320RS1214

: 0 413 406 204 EP type number

Governor

: RQV275...1250MW115-1 Governor design.

: 0 420 083 992 Governer no.

Customer-spec. information : RVI Customer

: MIDR 060226 V Engine

1st version kW : 129.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 033

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening 1

: 207...210 pressure, bar

Orifice plate

: 0.6 diameter mm

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 4.20...4.30 Prestroke mm

(4.15...4.35)

Rack travel in mm : 16.50...19.50 Firing order : 1-5-3-6-2-4

Firing order

: 0-60-120-180-240-300 Phasina

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 10.3...10.5

100 s: (10.1...10.7)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 275.0

Rack travel in mm : 5.80...6.20 Del.quantity cm3/ : 2.0...2.4 100 s: (1.7...2.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1330 1st speed

rpm

: 9.80...10.20 travel mm : 950 2nd speed

travel mm

: 6.90...7.10

: 550 3rd speed rpm

: 3.60...4.20 travel mm

rpm : 275 4th speed

: 0.80...1.20 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1250 Speed

Aneroid pressure h: 1000

Del.quantity : 103.0...107.0)

cm3 : 3.50Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 298...306

Testing:

1st rack travel in: 11.80 Speed rpm : 1320...1340

2nd rack travel in: 4.00

rpm : 1460...1500 Speed

4th rack travel in: 1600

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control Lever

position degrees: 238...246 Setting point w/out bumper spring

rom Rack travel in mm: 7.1

Testing:

rpm: : 200 Speed Minimum rack trave: 6.10

Speed rpm : 275 Rack travel in mm : 5.50...5.90

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 12.80...12.90

2nd speed rpm : 700

Rack travel in m: 11.90...12.00

3rd speed rpm : 1000

Rack travel in m: 12.30...12.50

4th speed rpm : 500
Rack travel in m: 11.50...11.70

Aneroid/Altitude Compansator Test

1st version

Setting

: 1250 Speed rom hPa : 1000 Pressure

Rack travel mm : 12.80...12.90

Measurement

1/min: 1250 Speed

1st pressure hPa : -

Rack travel in m: 11.70...11.90 2nd pressure hPa : 180 Rack travel in m: 12.30...12.60

3rd pressure hPa : 140

Rack travel in m: 12.00...12.20

START CUT-OUT

1/min : 200 (220) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Ameroid pressure h: 1000

rpm : 700 Speed

Del.quantity cm3/: 98.5...101.5 1000 s: (96.0...104.0) Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 1250 Del.quantity cm3/: 89.0...91.0 1000 s: (87.0...93.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

rpm : 1320...1340 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 88.0...112.0

1000 s: (85.0...115.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.80...6.20
Del.quantity cm3/ : 20.0...24.0

1000 s: (17.5...26.5)

cm3 : 3.50 Spread

1000 s: (5.00)

Remarks:

Set start-of-delivery sensor with prestroke = 4.20...4.30 mm at

cylinder 1.

Note remarks

Test sheet

: IHC : 20.03.92 Edition

Replaces

Test oil

: ISO-4113

Combination no.

: 0 403 446 298

Injection pump

Pump designation : PES6MW100/320RS1198

EP type number

: 0 413 406 188

Governor

: RQV350...1200M46-44 Governor design.

Governer no.

: 0 420 083 265

Customer-spec. information : NAVISTAR

Customer

Engine

: DTA-466

1st version kW

: 157.0

Rated speed

: 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

assembly

: 1 688 901 101

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Lenath mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.25...3.35 : (3.20...3.40)

Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 800

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 12.2...12.4

100 s: (12.0...12.6)

Spread

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 350.02nd speed

Rack travel in mm: 5.3...5.5

Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 1450

: 9.80...10.20 travel mm

2nd speed

rpm : 1250

travel mm

3rd speed

: 7.90...8.10 rpm : 550

travel mm

: 3.10...3.70 rpm : 350 4th speed

travel mm

: 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Spread

rpm : 800

Aneroid pressure h: 900

: 122.0...124.0 Del.quantity

: (120.0...126.0) 1000

cm3

: 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 10.50

rpm : 1270...1290

2nd rack travel in: 4.00

Speed rpm : 1395...1405 4th rack travel in: 1550

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control Lever

position degrees: 66...74

Setting point w/out bumper spring

rpm Rack travel in mm: 5.4

Testing:

rpm : 100 Speed Minimum rack trave: 9.00 rpm : 350 Speed

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 900 Pressure

: 11.50...11.60 Rack travel mm

Measurement

1/min : 500Speed

1st pressure hPa : -

Rack travel in m: 9.60...9.70

2nd pressure hPa : 215

Rack travel in m: 10.00...10.10
3rd pressure hPa : 380
Rack travel in m: 10.70...11.10

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 1200 Del.quantity cm3/: 118.5...122.5

1000 s: (116.5...124.5)

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 83.0...85.0 1000 s: (81.0...87.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50

rpm : 1270...1290 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...170.0

1000 s: (125.0...175.0)

Rack travel in mm : 12.50...13.50

LOW IDLE

rom : 350 Speed

Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

: IHC #1819326C91

Only perform pump setting with original overflow valve without IH hose and

restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

Note remarks

: MB 6,1 A 1 : 13.03.92 Test sheet Edition : 01.92 Replaces

: ISO-4113 Test oil

: 0 403 446 299 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1144

: 0 413 406 138 EP type number

Governor

: RQV300...1200MW69-3 Governor design.

: 0 420 083 266 Governer no.

Customer—spec. information : MB-NFZ Customer

: 0M366A Engine

1st version kW : 116.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 089 Test lines

Outside diameter x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm : (3.65...3.85) Rack travel in mm : 9.00...12.00

: 1-5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 7.7...7.9

100 s: (7.5...8.1)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 7.9...8.1

Del.quantity cm3/ : 0.9...1.3 100 s: (0.6...1.5)

cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1250 1st speed

: 8.80...9.20 travel mm

rpm : 1000 2nd speed : 6.70...6.90

travel mm : 500

3rd speed rpm : 4.20...4.80 travel mm

: 300 4th speed rpm

: 1.50...1.90 travel mm

GUIDE SLEEVE POSITION

Control-Lever position

rpm : 1240

Rack travel in mm : 15.20...17.80

Degree: -1

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

: 1200 Speed rpm

: 77.0...79.0 Del.quantity

1000 : (75.0...81.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 112...120

Testing:

1st rack travel in: 10.10

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1315...1345 4th rack travel in: 1450

rpm : 0.00...1.00Speed

LOW IDLE 1

Control Lever

position degrees: 78...86

Setting point w/out bumper spring

: 300 rpm Rack travel in mm: 8.0

Testing:

rpm : 200 Speed

Minimum rack trave: 9.50 rpm

Speed rpm : 300 Rack travel in mm : 7.90...8.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200
Rack travel in m: 11.10...11.20
2nd speed rpm : 750

Rack travel in m: 11.70...11.90

3rd speed rpm : 600

Rack travel in m: 12.00...12.20

START CUT-OUT

Speed

1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 750 Speed

Del.quantity cm3/: 70.5...73.5 1000 s: (68.0...76.0)

cm3 : 5.00Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

D13

Del.quantity cm3/: 78.0...88.0

1000 s: (75.0...91.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 7.90...8.10

Del.quantity cm3/: 9.0...13.0 1000 s: (6.5...15.5) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Note remarks

: RVI 8,8 S 5 Test sheet : 13.03.92 Edition : 01.92 Replaces Test oil : 1so-4113

Combination no. : 0 403 446 300

Injection pump

Pump designation : PES6MW100/320RS1171

: 0 413 406 156 EP type number

Governor

Governor design. : RQV300...1300MW80-7

: 0 420 083 267 Governer no.

Customer-spec. information : RVI Customer

Engine : MIDS 060212B

: 117.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 033

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

: 0,6 diameter mm

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.00...3.10 Prestroke mm

: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

cm3 : 0.3Spread

£ 100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.40...5.80 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1480 1st speed

: 9.60...10.00 travel mm

rpm : 1350 2nd speed

: 8.70...8.90 travel mm

rpm : 500 3rd speed

3.30...3.90 300 travel mm

4th speed man

: 1.20...1.60 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 700

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 116...124

Testing: 1st rack travel in: 9.80 rpm : 1395...1405 Speed 2nd rack travel in: 4.00 rpm : 1485...1515 Speed 4th rack travel in: 1700 Speed rom : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 61...69 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.2 Testina: : 200 Speed rpm Minimum rack trave: 7.60 : 300 מוכרו Rack travel in mm : 5.40...5.80 Ameroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 700 Speed rom Pressure Rack travel mm : 10.80...10.90 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.00...9.40 2nd pressure hPa : 180 Rack travel in m: 10.35...10.45 3rd pressure hPa : 120 Rack travel in m: 9.70...9.90 START CUT-OUT 1/min: 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 700 : 900 Speed rpm Del.quantity cm3/: 86.0...89.0 1000 s: (83.5...91.5) Spread cm3 : 5.00 1000 s: (7.0) Aneroid pressure h: rpm : 500 **beea** Del.quantity cm3/: 49.0...51.0 1000 s: (47.0...53.0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.80 rpm : 1395...1405 Speed

STARTING FUEL DELIVERY

грт : 100 Speed

Del.quantity cm3/: 90.0...110.0 1000 s: (87.0...113.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 5.40...5.80 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Start-of-delivery mark mode with prestroke 3.00...3.10 mm at barrel 1

Note remarks

: MB 6,1 B 12 Test sheet : 13.03.92 Edition : 01.92 Replaces

: ISO-4113 Test oil

Combination no. : 0 403 446 301

Injection pump

Pump designation : PES6MW100/720RS1131-

: 0 413 406 165 EP type number

Governor

: RQV300...1300MW50-22 Governor design.

: 0 420 083 268 Governer no.

Customer-spec. information : MB-NFZ Customer

: 0M366LA Engine

: 177.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 039 Test Lines

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.60...3.70 Prestroke mm

: (3.55...3.75)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm : 13001st speed

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 11.4...11.6

100 s: (11.2...11.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm : 6.4...6.6 Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1450 1st speed

9.40...9.80 travel mm

1350 2nd speed rom : : 8.50...8.70 travel mm

rpm : 450 3rd speed

: 2.60...3.20 travel nm

rpm : 300 4th speed

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1340 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 1000

: 114.0...116.0 Del.quantity

1000 : (112.0...118.0) cm3 : 3.50

Spread

1000 : (6.00)

1st version Control lever position degrees: 110...118 Testing: 1st rack travel in: 13.40 rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1470...1500 Speed 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 74...82 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.5 Testing: rpm : 200 Speed Minimum rack trave: 8.00 rpm : 300 Rack travel in mm : 6.40...6.60 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom Pressure hPa:-: 10.80...10.90 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 200 Rack travel in m: 11.10...11.30 2nd pressure hPa : 500 Rack travel in m: 13.50...13.70 3rd pressure hPa : 1000 Rack travel in m: 14.40...14.50 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000

Speed rpm : 750 Del.quantity cm3/ : 106.5...109.5

cm3 : 5.00

1000 s: (7.0)

1000 s: (104.0...112.0)

Ameroid pressure h: Speed rpm : 500
Del.quantity cm3/ : 41.0...43.0
1000 s: (39.0...45.0)

BREAKAWAY

full load rack tr: 13.40 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

1mm rack travel less than

Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0)

LOW IDLE

1st version

Speed rpm : 300
Rack travel in mm : 6.40...6.60
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Spread

Note remarks

Test sheet

Edition

: 13.03.92

Replaces Test oil : 02.92

: TSO-4113

Combination no.

: 0 403 446 302

Injection pump

Pump designation : PES6MW100/720RS1131

EP type number

: 0 413 406 123

Governor Governor design.

: RQV300...1300MW50-24

Governer no.

: 0 420 083 270

Customer spec. information Customer

: MB-NFZ

Engine

: 0M 366 A

1st version kW

: 121.0

Rated speed

: 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 715 089

Outside diameter

x Wall thickness

x Lenath mm

: 8.00x2.50x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values ...

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.70...3.80

: (3.65...3.75)

Rack travel in mm : 9.00...12.00

D18

Firing order

: 1-5-3-6-2-4

Phasina

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1300

Rack travel in mm : 10.90...11.00

Del.quantity cm3/ : 8.8...9.0

100 s: (8.6...9.2)

Spread

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.1...6.3

Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 14501st speed

: 9.40...10.00 travel mm

rpm : 1350 2nd speed

: 8.50...8.70 travel mm

: 500 3rd speed rpm

2.70...3.30 travel mm

4th speed rpm

: 1.20...1.50 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1300

Aneroid pressure h: 700 Aneroid Del.quantity 1000

: 88.0...90.0

: (86.0...92.0)

Spread

: 3.50 cm3

1000 : (6.00)

1st version Control lever 1st version position degrees: 108...116 Aneroid pressure h: 700 rpm : 750 Testing: Del.quantity cm3/: 86.0...89.0 1000 s: (83.5...91.5) 1st rack travel in: 9.90 rpm : 1340...1350 Speed cm3 : 5.002nd rack travel in: 4.00 Spread 1000 s: (7.0) rpm : 1410...1440 Speed Aneroid pressure h: -4th rack travel in: 1500 rpm : 500 rom : 0.00...1.00Speed Speed Del.quantity cm3/: 49.0...51.0 1000 s: (47.0...53.0) LOW IDLE 1 Control lever position degrees: 72...80 Setting point w/out bumper spring BREAKAWAY rpm : 300° Rack travel in mm: 6.2 1st version 1mm rack travel less than Testing: : 200 full load rack tr: 9.90 Speed rpm rpm : 1340...1350 Minimum rack trave: 8.00 Speed : 300 Speed rpm Rack travel in mm : 6.10...6.30 STARTING FUEL DELIVERY TORQUE CONTROL Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0) : 0.70 Dimension a mm Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 10.90...11.00 2nd speed rpm : 750 LOW IDLE Rack travel in m: 11.60...11.70 3rd speed rpm : 1100 Rack travel in m: 11.10...11.30 rpm : 300 Speed Rack travel in mm : 6.10...6.30 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Aneroid/Altitude cm3 : 3.50Spread Compensator Test 1000 s: (5.50) Remarks: 1st version Setting : 500 Speed rpm Pressure hPa : -: 9.80...9.90 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 200 Rack travel in m: 10.20...10.30 2nd pressure hPa : 400 Rack travel in m: 11.00...11.30 3rd pressure hPa : 700 Rack travel in m: 11.60...11.70 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

D19

Note remarks

Test sheet

: 13.03.92 Edition : 02.92 Replaces : ISO-4113 Test oil

Combination no. : 0 403 446 303

Injection pump

Pump designation : PES6MW100/720RS1131-

: 0 413 406 165 EP type number

Governor

Governor design. : RQV300...1300MW50-25

Governer no. : 0 420 083 271

Customer-spec. information : MB-NFZ Customer

: 0M366LA Engine

1st version kW : 155.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

: 1 680 750 089 Test Lines

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.60...3.70 Prestroke mm

: (3.55...3.75)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (C.75)

BASIC SETTING

rpm : 13001st speed

Rack travel in mm : 13.10...13.20

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Satting of injection pump with governor

GUIDE SLEEVE TRAVEL

rom : 1450 1st speed

: 9.40...10.00 travel am rpm : 1350 2nd speed

: 8.50...8.70 travel mm : 500 3rd speed rpm

: 2.70...3.30 travel mm

rpm : 300 4th speed

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1350 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 1000

: 98.0...100.0 Del.quantity 1000 : (96.0...102.0)

cm3 : 3.50

Spread 1000 : (6.00)

1st version Control lever position degrees: 112...120 Testing: 1st rack travel in: 12.10 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1455...1485 Speed 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 74...82 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.5 Testing: Speed rpm : 200 Minimum rack trave: 8.00 rpm : 300 Rack travel in mm : 6.40...6.60 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed man hPa : -Pressure : 10.30...10.40 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 200 Rack travel in m: 11.20...11.30 2nd pressure hPa : 350 Rack travel in m: 12.40...12.70 3rd pressure hPa : 1000 Rack travel in m: 13.10...13.20 START CUT-CUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 750 Speed Del.quantity cm3/: 87.0...91.0 1000 s: (85.0...93.0)

cm3 : 5.00

1000 s: (7.0)

1000 s: (7.5...16.5) Spread cm3 : 3.50 1000 s: (5.50)

*

Remarks:

021

Spread

Note remarks

Test sheet : MB : 13.03.92 Edition : 02.92 Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 304

Injection pump

Pump designation : PES6MW100/720RS1131

: 0 413 406 123 EP type number

Governor

Governor design. : RQV300...1200MW50-26

: 0 420 083 272 Governer no.

Customer-spec. information : MB-NFZ Customer

: OM 366 A Engine

: 115.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 715 089 Test lines

Outside diameter x Wall thickness

: 8,00x2,50x600 x Length mn

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm : (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 10.30...10.40

Del.guantity cm3/: 8.4...8.6

100 s: (8.2...8.8)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm: 5.6...5.8 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1250 1st speed : 7.40...7.80 travel mm

rpm : 880 2nd speed : 4.90...5.10 travel nm

: 500 3rd speed man

: 2.70...3.30 travel mm rpm : 300 4th speed

: 1.20...1.60 travel mm

GUIDE SLEEVE FOSITION Control-lever position

Degree: -1

rpm : 1250 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed Aneroid pressure h: 700

: 84.0...86.0 Del.quantity

1000 : (82.0...88.0)

: 3.50 Spread cm3 1000 : (6.00)

1st version Control lever 1st version position degrees: 107...115 Aneroid pressure h: 700 : 600 Speed rpm Testing: Del.quantity cm3/: 78.0...81.0 1000 s: (75.5...83.5) 1st rack travel in: 9.30 rpm : 1240...1250 Speed cm3 : 5.00Spread 2nd rack travel in: 4.00 1000 s: (7.0) Speed rpm : 1325...1355 4th rack travel in: 1450 Speed rpm: 0.00...1.00 Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 44.0...46.0 1000 s: (42.0...48.0) LOW IDLE 1 Control Lever position degrees: 74...82 BREAKAWAY Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.7 1st version 1mm rack travel less than Testing: full load rack tr: 9.30 : 200 Speed rom rpm : 1240...1250 Minimum rack trave: 7.50 Speed Speed rpm : 300 Rack travel in mm : 5.60...5.80 STARTING FUEL DELIVERY TORQUE CONTROL rpm : 100 Dimension a mm : 0.80 Speed Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 10.30...10.40 2nd speed rpm : 600 LOW IDLE Rack travel in m: 11.00...11.20 3rd speed rpm : 1100 Rack travel in m: 10.30...10.60 rpm : 300 Speed Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Aneroid/Altitude cm3 : 3.50 Spread Compensator Test 1000 s: (5.50) Remarks: 1st version Setting : : 500 Speed rpm hPa : -Pressure : 8.70...8.80 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 200 Rack travel in m: 9.00...9.10 2nd pressure hPa : 350 Rack travel in m: 10.20...10.50 3rd pressure hPa : 700 Rack travel in m: 11.00...11.20 START CUT-OUT 1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

Note remarks

Test sheet : IHC : 20.03.92 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 446 305

Injection pump

Pump designation : PES6MW100/320RS1204

: 0 413 406 192 EP type number

Governor

: RQV350...1350MW/6-45 Governor design.

: 0 420 083 275 Governer no.

Customer-spec. information : NAVISTAR Customer

: DTA-360 Engine

: 112.0 ist version kW : 2700 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 101 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.25...3.35 : (3.20...3.40) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1350 1st speed

Rack travel in mm : 9.20...9.30

Del.quantity cm3/: 8.7...8.9

100 s: (8.5...9.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 5.2...5.4 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1450 1st speed

: 8.20...8.67 travel mm

rpm : 1350 2nd speed

: 7.40...7.60 travel mm

rpm : 500 3rd speed

: 2.50...3.10 travel mm

rpm : 350 4th speed

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1350 Speed Aneroid pressure h: 900

: 87.5...89.5 : (85.5...91.5) Del.quantity 1000

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 104...112

Testing:

1st rack travel in: 8.20

rpm : 1425...1455

2nd rack travel in: 4.00

rpm : 1510...1520 Speed

4th rack travel in: 1650

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 72...80 Setting point w/out bumper spring

rpm Rack travel in mm: 5.3

Testing:

rpm : 100 Speed

Minimum rack trave: 9.00

: 350 rpm

Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed

rpm : 350...500

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm

hPa : 900 Pressure : 9.20...9.30 Rack travel mm

Measurement

Speed

1/min: 500

1st pressure hPa : -

Rack travel in m: 7.90...8.10

2nd pressure hPa : 175

Rack travel in m: 8.30...8.40
3rd pressure hPa : 300
Rack travel in m: 8.70...9.10

START CUT-OUT

1/min : 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 54.5...58.5 1000 s: (52.5...60.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.20

rpm : 1425...1455 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 13.00...14.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 5.20...5.40

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: IHC #1819541C91

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

Note remarks

Test sheet : MB

: 20.03.92 Edition

Replaces

: ISO-4113 Test oil

: 0 403 446 306 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1131

: 0 413 406 123 EP type number

Governoir

Governor design: : RQV300...1300MW67-6

: C 420 C83 274 Governer no.

Customer-spec. information Customer : MB-NFZ

: OM 366 A Engine

: 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, par

: 1 680 715 089 Test lines

Outside diameter x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rom: 1300 1st speed

Rack travel in mm : 10.50...10.60

Del.guantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 5.6...5.8

Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-Lever position

Degree: -1 rpm : 1350 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 700

Del.quantity : 88.0...92.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 112...120

Testing:

1st rack travel in: 9.50

rpm : 1340...1350 Speed

2nd rack travel in: 4.00

Speed rpm: 1440...1470 4th rack travel in: 1550

: 0.00...1.00 Speed rom

LOW IDLE 1

Control lever

position degrees: 74...82

Setting point w/out bumper spring : 300 Speed COM Rack travel in mm: 5.7 Testing: rpm : 200 Speed Minimum rack trave: 7.50 rpm : 300 Rack travel in mm : 5.60...5.80 TORQUE CONTROL Dimension a mm : 0.80 Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 10.50...10.60 2nd speed rpm : 850 Rack travel in m: 11.20...11.40 3rd speed rpm : 1100 Rack travel in m: 10.70...10.90 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : -Pressure : 9.20...9.30 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 300 Rack travel in m: 9.70...9.90 2nd pressure hPa : 400 Rack travel in m: 10.50...10.70 3rd pressure hPa : 700 Rack travel in m: 11.20...11.40 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 850 Speed

Del.quantity cm3/: 88.0...91.0 1000 s: (85.5...93.5) cm3 : 5.00 1000 s: (7.0) Spread Aneroid pressure h: rpm_ : 500 Speed Del.quantity cm3/: 49.0...51.0 1000 s: (47.0...53.0) 027

BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.50 rpm : 1340...1350 Speed STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 80.0...90.0 1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.60...5.80
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Note remarks

Test sheet : IHC

: 27.03.92 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 307

Injection pump

Pump designation : PES6MW100/32URS1198

EP type number : 0 413 406 188

Governor

: RQV350...1200MW46-46 Governor design.

: 0 420 083 276 Governer no.

Customer-spec. information : NAVISTAR Customer

Engine : DTA-466

1st version kW : 157.0 : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.25...3.35 Prestroke mm

: (3.20...3.40)

Rack travel in mm: 9.00...12.00 Firing order: 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 12.2...12.4

100 s: (12.0...12.6)

cm3 : 0.3Soread

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1450 1st speed

: 9.80...10.20 travel mm

rpm : 1250 2nd speed

: 7.90...8.10 travel mm

: 550 3rd speed rpm

: 3.10...3.70 travel mm

rpm : 350 4th speed

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1200

: 122.0...124.0 Del, quantity 1000 : (120.0...126.0)

: 3.50 cm3

Spread 1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 102...110

Testing:

1st rack travel in: 10.50

rpm : 1270...1290 Speed

2nd rack travel in: 4.00

rpm : 1395...1405 Speed

4th rack travel in: 1550

rpm : 0.00...1.00 Speed

LCW IDLE 1 Control lever

position degrees: 66...74

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 5.4

Testina:

Speed rom : 100 Minimum rack trave: 9.00

: 350 Speed rom

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 300...450 Speed

Ameroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rom hPa : 1200 Pressure

: 11.50...11.60 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.80...8.90

2nd pressure hPa : 200

Rack travel in m: 9.50...9.60

3rd pressure hPa : 460

Rack travel in m: 10.60...11.00

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 1200 Speed

Del.quantity cm3/: 118.5...122.5

1000 s: (116.5...124.5)

Spread cn:3 : 5.00 1000 s: (7.0)

Ameroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 70.0...72.0 1000 s: (68.0...74.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50

rpm : 1270...1290 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...170.0

1000 s: (125.0...175.0)

Rack travel in mm : 12.50...13.50

LOW IDLE

rpm : 350 Speed

Rack travel in ma : 5.30...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

: IHC #1819485C91

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

Note remarks

: MAN 7,3 D 1 Test sheet : 23.10.91 Edition : 10.91 Replaces : ISO-4113 Test oil

Combination no. : 0 403 456 116

Injection pump

Pump designation : PES6MW100/321RS1215

: 0 413 406 205 EP type number

Governor

Governor design. : RQ250/1200MW84-7 Governer no. : 0 420 082 055

Customer-spec. information : MAN Customer

Engine : D 0826 LF 04

: 199.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 16.3...16.5

100 s: (16.1...16.7)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 250.0 2nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 2.1...2.5 100 s: (1.8...2.7)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1320 1st speed

: 9.30...9.70 travel mm rpm : 1255 2nd speed : 6.50...6.70 travel mm

3rd speed

rpm : 360 : 3.90...4.50 rpm : 250 travel mm

4th speed

: 1.60...2.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: 108

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1200

: 163.0...165.0 Del.quantity

1000 : (161.0...167.0) cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 91...99

Setting point:

Speed : 600 rpm Rack travel in mm: 20.0

Testing:

1st rack travel in: 12.60

Speed rpm : 1245...1260 2nd rack travel in: 4.00

rpm : 1340...1370 Speed

4th rack travel in: 1400

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 67...75

Setting point w/out bumper spring

rpm : 250

Rack travel in mm: 6.0

Testing:

Speed rpm : 150

Minimum rack trave: 7.50

rom : 250

Rack travel in mm : 5.90...6.10

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rom

hPa : 200 Pressure

Rack travel mm : 10.00...10.10

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 9.70...9.80

2nd pressure hPa : 700

Rack travel in m: 12.30...12.60 3rd pressure hPa : 1200

Rack travel in m: 13.60...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 600

Del.quantity cm3/: 167.0...170.0 1000 s: (164.5...172.5)

cm3 : 5.00Spread 1000 s: (7.6)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 77.0...79.0 1000 s: (75.0...81.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.60

rpm : 1245...1260 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 70.0...90.0 1000 s: (67.0...93.0)

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 21.0...25.0

1000 s: (18.5...27.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

: MAN #3-7137

Start-of-delivery mark is at start of

delivery of cylinder 1

Note remarks

: CUM Test sheet : 27.03.92 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 466 127

Injection pump

Pump designation : PES6MW100/120RS1137-

EP type number

: 0 413 406 180

Governor

Governor design. : RSV550...1100MW2A335

: 0 420 085 185 Governer no.

Customer-spec. information Customer : CUMMINS

: 6 CTA-8.3 Engine

: 194.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 1100 1st speed

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 15.5...15.7

100 s: (15.3...15.9)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 550.0

Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 2.2...2.6

100 s: (2.0...2.9) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -3

rpm : 800

Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELTY. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Aneroid pressure h: 900

: 155.5...157.5 Del.quantity 1000 : (153.5...159.5)

: 3.50

cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 88...96

Setting point:

: 800 Speed 17001 Rack travel in mm: 0.6

Testina:

1st rack travel in: 13.50

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

rpm : 1215...1225 Speed

3rd rack travel in: 4.00

rpm : 1215...1245 Speed

4th rack travel in: 1350

rpm : 0.30...1.70 Speed

LOW IDLE 1

Control lever

position degrees: 68...76

Setting point wout bumper spring

: 550 rpm Rack travel in mm: 6.3

Testina:

Spead : 100 הסח Minimum rack trave: 19.00

: 550 rpm

Rack travel in mm : 6.20...6.40

TORQUE CONTROL

Torque control curve – 1st version

1st speed rpm : 1100

Rack travel in m: 14.50...14.60

2nd speed rpm : 750

Rack travel in m: 14.70...14.80

rpm : 1000 3rd speed

Rack travel in m: 14.70...14.80

Aneroid/Altitude

Compensator Test

1st version

Settina

: 500 Speed COM hPa : 900

Pressure : 14.70...14.80 Rack travel mm

Measurement

Speed $1/\min : 500$

1st pressure hPa : -

Rack travel in m: 11.30...11.50

2nd pressure hPa : 370

Rack travel in m: 12.20...12.30

3rd pressure hPa : 575

Rack travel in m: 13.60...14.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

: 750 mars Del.quantity cm3/: 156.0...160.0

1000 s: (154.0...162.0)

cm3 : 5.00Spread

1000 s: (7.0)

Aneroid pressure h:

Speed rpm : 500 Del.quantity cm3/: 100.0...102.0

1000 s: (98.0...104.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.50

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 130.0...150.0 1000 s: (127.0...153.0) Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 550 Speed

Rack travel in mm : 6.70...6.90

Del.quantity cm3/: 22.5...26.5

1000 s: (20.0...29.0)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: CUM #3911657

Start-of-delivery mark or blockage = 8.5° cam rotation angle after start of

delivery for cylinder 1.

Adjust stop lever to 0.5...1.0 mm

before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 : 3.50...3.60 Note remarks Prestroke mm : (3.45...3.65) Rack travel in mm : 9.00...12.00 : CUM Test sheet Edition : 20.03.92 Firing order : 1-5-3-6-2-4 Replaces Test oil : ISO-4113 Combination no. : 0 403 466 128 : 0-60-120-180-240-300 Phasing Phasing Tolerance + - ° Injection pump : 0.50 (0.75) Pump designation : PES6MW100/120RS1137-Time to cyl. no. : 1 EP type number : 0 413 406 180 Governor BASIC SETTING Governor design. : RSV550...1100MW2A335 1st speed rpm : 1100: 0 420 085 196 Governer no. Rack travel in mm : 13.30...13.40 Customer-spec. information Del.quantity cm3/: 14.0...14.2 Customer : CUMMINS : 6 CTA-8.3 100 s: (13.8...14.4) Engine : 176.0 cm3 : 0.31st version kW Spread : 2200 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 550.0 Rack travel in mm : 6.7...6.9 Del.quantity cm3/ : 2.2...2.6 Test oil inlet temp. °C : 38...42 100 s: (2.0...2.9) cm3 : 0.3Overflow valve Spread : 1 419 992 198 100 s: (0.5) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 rpm : 800 : 1 688 901 101 assembly Speed Rack travel in mm : 0.30...1.00 Opening : 207...210 pressure, bar Governor spring pre-tension Click setting x : 4.00Orifice plate FULL LOAD DELIV. AT FULL LOAD STOP diameter mm : 0,6 1st version Test lines : 1 680 750 014 Speed rpm : 1100 Aneroid pressure h: 1000 : 140.0...142.0 Outside diameter Del.quantity x Wall thickness 1000 : (138.0...144.0) : 6.00x2.00x600 : 3.50 x Length mm Spread cm3 1000 : (6.00) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values 1st version

Control lever

position degrees: 86...94

BEGINNING OF DELIVERY

Setting point: Speed Rack travel in mm: 0.6 Testing: 1st rack travel in: 12.30 rpm : 1145...1155 Speed 2nd rack travel in: 4.00 Speed rpm : 1215...1225 3rd rack travel in: 4.00 : 1215...1245 Speed rom 4th rack travel in: 1350 rom : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 66...74 Setting point w/out bumper spring COTI Rack travel in mm: 6.3 Testina: Speed rpm: 100 Minimum rack trave: 19.00 : 550 rpm Rack travel in mm : 6.20...6.40 TORQUE CONTROL Torque control curve - 1st version rest speed rpm : 1100

Rack travel in m: 13.30...13.40

and speed rpm : 750 1st speed 2nd speed Rack travel in m: 14.00...14.10 3rd speed rpm : 1000 Rack travel in m: 14.00...14.10 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 1000 Pressure Rack travel mm : 14.00...14.10 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.00...10.10 2nd pressure hPa : 450

Rack travel in m: 11.00...11.10

Rack travel in m: 12.60...13.00

FUEL DELIVERY CHARACTERISTICS

3rd pressure hPa : 650

1st version Aneroid pressure h: 1000 Speed rpm: 750
Del.quantity cn3/: 153.0...157.0
1000 s: (151.0...159.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: rpm 500 Speed Del.quantity cm3/: 79.0...81.0 1000 s: (77.0...83.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.30 rpm : 1145...1155 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 130.0...150.0 1000 s: (127.0...153.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm: 550
Rack travel in mm: 6.70...6.90
Del.quantity cm3/: 22.5...26.5 1000 s: (20.0...29.0) cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

: CUM #3921691

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

: LIE 5,6 B Test sheet : 03.04.92 Edition : 02.92 Replaces : ISO-4113 Test oil

: 0 403 474 008 Combination no.

Injection pump

Pump designation : PES4MW100/720RS1181

: 0 413 404 107 EP type number

Governor

Governor design. : RSV400...1000MW1A333 Governer no. : 0 420 085 118

Governer no.

Customer-spec. information : LIEBHERR Customer

: 914 Engine

1st version kW : 120.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 049

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.00...3.10 Prestroke mm

: (2.95,..3.15)

Rack travel in mm : 9.00...12.00

: 1-3-4-2 Firing order

: 0-90-180-270 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 980 1st speed

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 15.3...15.5

100 s: (15.1...15.7)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 6.1...6.3 Del.quantity cm3/: 2.0...2.4

100 s: (1.7...2.6)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 3.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

: 153.0...155.0 Del.quantity

1000 : (151.0...157.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 96...104

Setting point:

: 800 Speed Rack travel in mm: 0.6

Testing:

E08

1st rack travel in: 11.20 rpm : 1020...1030 Speed 2nd rack travel in: 4.00 Speed rpm : 1050...1080 4th rack travel in: 1173 rpm : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 70...78 Setting point wout bumper spring Speed rpm : 400 Rack travel in mm : 5.7 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00 rom : 480...540 Sr/eed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 980 Rack travel in m: 12.20...12.30 rpm : 600 2nd speed Rack travel in m: 12.20...12.30 rpm : 450 5th speed Rack travel in m: 13.00...13.20 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/ : 154.5...157.5 1000 s: (152.0...160.0) cm3 : 3.50 1000 s: (7.0) Spread **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.20 rpm : 1020...1030 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 130.0...140.0 1000 s: (127.0...143.0) Rack travel in mm : 19.00...21.00 LOW IDLE

Remarks:

E09

Note remarks

Test sheet

: 13.03.92 Edition : 02.92 Replaces

: ISO-4113 Test oil

Combination no. : 0 403 474 022

Injection pump

Pump designation : PES4MW100/720RS1151

: 0 413 404 104 EP type number

Governor

: RSV350...1300MW0A329 Governor design.

-12

: 0 420 085 189 Governer no.

Customer-spec. information : MB-NFZ Customer

: 0M364A Engine

1st version kW : 79.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 : (3.65...3.85) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-3-4-2 Firing order

: 0-90-180-270 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 12801st speed

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 8.2...8.4

100 s: (8.0...8.6)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.0 2nd speed

Rack travel in mm: 6.0...6.8 Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1280 Speed

Aneroid pressure h: 700

Del.quantity : 82.0...84.0 1000 : (80.0...86.0)

cm3 : 3.50 1000 : (6.00) Spread

RATED SPEED

1st version

Control lever

position degrees: 95...103

Setting point:

rpm : 800 Speed Rack travel in mm: 0.6

Testina:

1st rack travel in: 9.90 rom : 1320...1330 Speed 2nd rack travel in: 4.00 Speed rpm : 1390...1420 4th rack travel in: 1550 rpm : 0.30...1.70 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm: 350 Rack travel in mm: 6.4 Testing: rom : 100 Speed Minimum rack trave: 19.00 Speed rom : 350 Rack travel in mm : 6.00...6.80 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1280 Rack travel in m: 10.90...11.00 2nd speed rpm : 600
Rack travel in m: 11.80...11.90
3rd speed rpm : 1000 Rack travel in m: 11.70...11.90 4th speed rpm : 1175 Rack travel in m: 11.00...11.30 Aneroid/Altitude Compensator Test 1st version Setting rom : 500 Speed hPa : Pressure : 9.80...10.00 Rack travel mm Measumement $1/\min : 500$ Speed 1st pressure hPa : 200 Rack travel in m: 10.70...10.90 2nd pressure hPa : 300 Rack travel in m: 11.20...11.40 3rd pressure hPa : 700 Rack travel in m: 11.70...11.80 FUEL DELIVERY CHARACTERISTICS

Spread cm3:5.00
1000 s: (7.0)
Aneroid pressure h: Speed rpm:500
Del.quantity cm3/: 46.0...48.0
1000 s: (44.0...50.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.90
Speed rpm: 1320...1330

STARTING FUEL DELIVERY

Speed rpm: 100
Del.quantity cm3/: 78.0...88.0
1000 s: (75.0...91.0)

Speed rpm : 350
Rack travel in mm : 6.00...6.80
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Test hydr. locking device for starting with 800...1200 hPa air pressure.

Speed

1st version

Aneroid pressure h: 700

rpm : 600

Del.quantity cm3/: 75.0...78.0 1000 s: (72.5...80.5) BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : IHC 7,7 C : 13.03.92 Test sheet Edition : 12.91 Replaces Test oil : ISO-4113 Combination no. : 0 403 476 111 Injection pump : PES6MW100/320RS1198-Pump designation : 0 413 406 211 EP type number Sovemor Governor design. : RSV350...1250MW2A347 : 0 420 085 182 Governer no. Customer-spec. information Customer : NAVISTAR : DT-466 Engine 1st version kW : 156.0 : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 101 assembly Openina : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ___ BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.25...3.35 Prestroke mm : (3.20...3.40) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasina Tolerance + - ° ± 0.50 (0.75) BASIC SETTING 1st speed rpm: 1250 Rack travel in mm : 11.60...11.70 Del.quantity cm3/: 12.3...12.5 100 s: (12.1...12.7) cm3 : 0.3Spread 100 s: (0.6) rpm : 350.0 2nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.5...1.9 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-Lever position Degree: -3 rpm : 800 Speed Rack travel in mm: 0.30...1.00 Governor spring pre-tension Click setting x : 2.80FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1250 Speed Aneroid pressure h: 900 : 123.0...125.0 Del.quantity 1000 : (121.0...127.0) : 3.50 cm3Spread : (6.00) 1000 RATED SPEED

1st version Control lever

position degrees: 100...108

Setting point:

: 800 Speed rpm

Rack travel in mm: 0.6 Testing: 1st rack travel in: 10.60 rpm : 1290...1300 Speed 2nd rack travel in: 4.00 rpm : 1350...1360 Speed 3rd rack travel in: 4.00 rpm : 1340...1370 Speed 4th rack travel in: 1500 rom : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 70...78 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.0 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 4.90...5.10 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom Pressure hPa : -: 9.00...9.10 Rack travel mm Measurement Speed 1/min: 500 1st pressure hPa : 265 Rack travel in m: 10.00...10.10 2nd pressure hPa : 455 Rack travel in m: 10.80...11.20 3rd pressure hPa : 900 Rack travel in m: 11.60...11.70 FUEL DELIVERY CHARACTERISTICS 1st version

1st version
Aneroid pressure h: Speed rpm : 500
Del.quantity cm3/ : 79.5...83.5
1000 s: (77.5...85.5)

BREAKAWAY

1st version 1mm rack travel less than full load rack tr: 10.60 Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 160.0...180.0 1000 s: (155.0...185.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.90...5.10
Del.quantity cm3/ : 15.5...19.5
1000 s: (13.0...22.0)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

: CUM #1818555C91

: 3.60...3.70 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.55...3.75) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : 27.03.92 Edition Replaces : 0-60-120-180-240-300 : ISO-4113 Phasing Test oil Tolerance + - ° : 0.50 (0.75) Combination no. : 0 403 476 113 BASIC SETTING Infection pump Pump designation : PES6MW100/720RS1131rpm: 1200 1st speed : 0 413 406 165 EP type number Rack travel in mm : 11.00...11.20 Governor : RSV350...1200MW0A342 Governor design. Del.quantity cm3/: 7.6...7.8 -10 : 0 420 085 187 Governer no. 100 s: (7.4...8.0) Customer-spec. information cm3 : 0.3Spread : MB-NFZ Customer 100 s: (0.6) Engine : OM 366 LA rpm : 350.0 : 132.0 2nd speed 1st version kW Rack travel in mm : 5.5...6.0 Del.quantity cm3/: 0.9...1.3 : 2400 Rated speed 100 s: (0.6...1.5) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve : 1 419 992 198 Degree: -3 rpm : 800 Rack travel in mm : 0.30...1.00 Inlet press., bar: 1.50 Governor spring pre-tension Test nozzle holder : 0 681 343 009 Click setting x : 3.00assembly FULL LOAD DELIV. AT FULL LOAD STOP **Opening** : 172...175 pressure, bar 1st version rpm : 1200 Speed Aneroid pressure h: 700 Test lines : 1 680 750 089 : 76.0...78.0 Del.quantity 1000 : (74.0...80.0) Outside diameter : 3.50 x Wall thickness Spread cm3 1000 : (6.00) : 8.00X2.50X600 x Length mm RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Control lever per values position degrees: 96...104 BEGINNING OF DELIVERY Setting point: Test pressure, bar: 30...32

Speed

Rack travel in mm: 0.6

Testing: 1st rack travel in: 10.10 Speed rpm : 1240...1245 * 2nd rack travel in: 4.00 rpm : 1280...1293 Speed 3rd rack travel in: 4.00 rpm : 1300...1330 Speed 4th rack travel in: 1450 Speed rpm : 0.30...1.70 5th rack travel in: 1240...1255 Speed rpm : 10.10 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 5.2 Testing: rpm : 100 Speed Minimum rack trave: 19.00 : 350 COU Rack travel in mm : 5.00...5.50 Rack travel in mm: 2.00 rpm : 400...460 Speed TORQUE CONTROL Dimension a mm : 1.10 Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 11.00...11.20 nd speed rpm : 600 Rack travel in m: 12.10...12.30 2nd speed 3rd speed rpm : 1900 Rack travel in m: 11.50...11.70 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : -: 10.10...10.30 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 200 Rack travel in m: 11.00...11.20 2nd pressure hPa : 300 Rack travel in m: 11.60...11.80 3rd pressure hPa : 700 Rack travel in m: 12.10...12.30 FUEL DELIVERY CHARACTERISTICS

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10 Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...6.00
Del.quantity cm3/: 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

* Read off speed set under 1. Add 40...48 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Tast hydr. locking device for starting with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

Firing order : 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : 0-60-120-180-240-300 Phasing Test sheet : 20.03.92 Edition : 0.50 (0.75) Tolerance + - * Replaces : ISO-4113 Test oil BASIC SETTING : 0 403 476 117 Combination no. 1st speed rpm: 1180 Injection pump Pump designation : PES6MW100/720RS1131-Rack travel in mm : 13.20...13.30 : 0 413 406 165 Del.quantity cm3/: 10.6...10.8 EP type number Governor Governor design. : RSV750...1200MW0A329 100 s: (10.4...11.0) cm3 : 0.3: 0 420 085 193 Spread Governer no. 100 s: (0.6) Customer-spec. information : MB-NFZ Customer 2nd speed rpm : 750.0 Rack travel in mm : 5.8...6.3 : 0M366LA Engine Del.quantity cm3/: 1.0...1.4 Rated speed : 2400 100 s: (0.7...1.6) cm3 : 0.3TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil GUIDE SLEEVE POSITION inlet temp. °C : 38...42 Control-lever position Degree: -3 Overflow valve rpm : 800 : 1 419 992 198 Rack travel in mm: 0.30...1.00 Inlet press., bar: 1.50 Governor spring pre-tension Click setting x : 6.00Test nozzle holder : 0 681 343 009 assembly FULL LOAD DELIV. AT FULL LOAD STOP **Opening** : 172...175 1st version pressure, bar rpm : 1180 Speed Aneroid pressure h: 1000 Del.quantity: 106.0...108.0 Del.quantity : 100.0...100.0 1000 : (104.0...110.0) : 1 680 750 089 Test lines : 3.50 Outside diameter Spread cm3 1000 : (6.00) x Wall thickness : 8.00x2,50x600 x Length mm RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Control lever Set equal delivery quant. position degrees: 82...90 per values Setting point: BEGINNING OF DELIVERY : 800 Speed rpm Test pressure, bar: 30...32 Rack travel in mm: 0.6 : 3.60...3.70 Prestroke mm : (3.55...3.75)

Testing:

1st rack travel in: 12.20

Rack travel in mm : 9.00...12.00

rpm : 1230...1235 * Speed

2nd rack travel in: 4.00

rpm : 1310...1318 Speed

4th rack travel in: 1500

rpm : 0.30...1.70Speed

LOW IDLE 1 Control lever

position degrees: 70...78

Setting point w/out bumper spring

rpm : 750 Rack travel in mm: 6.0

Testing:

Speed : 100 COM Minimum rack trave: 19.00 Speed rpm: 750

Rack travel in mm : 5.80...6.30

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

Aneroid/Altitude Compensator Test

1st version

Setting Speed

: 500 man

hPa : -Pressure

: 10.10...10.20 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 350

Rack travel in m: 11.30...11.40

2nd pressure hPa : 500

Rack travel in m: 12.40...12.70

3rd pressure hPa : 1000

Rack travel in m: 13.20...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 : 600 Speed rpm

Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 35.0...37.0 1000 s: (33.0...39.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.20

Speed

rpm

: 1230...1235

STARTING FUEL DELIVERY

Speed

rpm

: 100

Del.quantity cm3/: 100.0...110.0

1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 750
Rack travel in mm : 5.80...6.30
Del.quentity cm3/: 10.0...14.0

1000 s: (7.5...16.5)

Spread

cm3 : 3.50

1000 s: (5.50)

Remarks:

Test hydr. locking device for starting with 800...1200 hPa air pressure.

* Read off speed set under 1. Add 80...88 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

: 3.60...3.70 BOSCH INU. PUMP TEST SPECIFICATIONS Prestroke mm : (3.55...3.75) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : 03.04.92 Edition Replaces : 0-60-120-180-240-300 : ISO-4113 Phasing rest oil Tolerance + - * : 0.50 (0.75) : 0 403 476 120 Combination no. BASIC SETTING Injection pump : PES6MN100/720RS1131-Pump designation rpm : 700 1st speed : 0 413 406 165 EP type number Rack travel in mm : 12.50...12.60 Governor : RSV350...750MW0A336-Governor design. Del.quantity cm3/: 8.5...8.7 : 0 420 085 198 Governer no. 100 s: (8.3...8.9) Customer-spec, information cm3 : 0.3Spread : MB-NFZ Customer 100 s: (0.6) : 0M 366 LA Engine rpm : 350.02nd speed : 87.0 1st version kW Rack travel in mm : 5.8...6.8 Del.quantity cm3/: 0.9...1.3 Rated speed : 1500 100 s: (0.6...1.5) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve : 1 419 992 198 Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...1.00 Inlet press., bar: 1.50 Test nozzle holder Governor spring pre-tension : 0 681 343 009 Click setting x : 2.80 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening 0 : 172...175 pressure, bar 1st version rpm : 700 Speed : 85.0...87.0 : 1 680 750 089 Test lines Del.quantity 1000 : (83.0...89.0) : 3.50 Spread cm3Outside diameter 1000 : (6.00) x Wall thickness : 8.00x2.50x600 x Length mm RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Control lever Set equal delivery quant. position degrees: 74...82 per values Setting point: BEGINNING OF DELIVERY : 800 Speed Test pressure, bar: 30...32 rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 11.50 Speed rpm: 750...755 * 2nd rack travel in: 4.00 Speed rpm: 775...783

4th rack travel in: 850

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 60...68

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.3

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 350 Speed

Rack travel in mm : 5.80...6.80

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50 rpm : 750...755 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 88.0...98.0 1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.80...6.80
Del.quantity cm3/: 9.0...13.0

1000 s: (6.5...15.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

* Read off speed set under 1. Add 25...33 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Note remarks

Test sheet : SFA : 13.4.92 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 406 036 032

Injection pump

Pump designation : PE6ZWM150/520/3LS33

: 0 416 056 008 EP type number

Governor

: RQUV320...775ZWA64R Governor design.

: 0 422 409 034 Governer no.

Customer-spec. information : SFAC Customer

: S1 DHR1 Engine

1st version kW : 440.0 : 1550 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 40...45

Overflow valve

: 2 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 443 022 assembly

Opening

pressure, ban : 172...175

: 1 680 750 027 Test lines

Outside diameter

x Wall thickness

: 8.00X2.00X1500 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm

: 2.00...2.10 : (1.95...2.15)

Rack travel in mm: 12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - " : 0.50 (0..75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm: 12.00

Del.guantity cm3/: 33.5...34.5

100 s: (33.3...34.7)

cm3 : 1.0Spread

100 s: (1.5)

rpm : 600 2nd speed Rack travel in mm: 9.00

Del.quantity cm3/ : 20.0...22.0

100 s: (19.5...22.5)

cm3 : 1.0 Spread 100 s: (1.5) rpm : 200

3rd speed Rack travel in mm: 9.00

Del.quantity cm3/: 9.5...12.5

100 s: (8.8...13.2)

cm3 : 1.0Spread 100 s: (1.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: 74...80 rpm : 775 Speed Rack travel in mm: 14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 775

: 475.0...485.0 Del.quantity 1000 : (472.0...488.0)

: 10.0 Spread cm3 : (15.0) 1000

RATED SPEED

1st version Control lever

position degrees: 74...80

Testing:

1st rack travel in: 13.00

rpm : 810...830 Speed

2nd rack travel in: 7.00

Speed rpm : 835...875 3rd rack travel in: 2.00 rpm : 855...930 Speed 4th rack travel in: 865...955 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 21...27 Testing: : 200 Speed rpm Minimum rack trave: 12.50 : 250 Speed rpm Rack travel in mm : 11.50...14.00 Rack travel in mm: 8.00 Speed : 320 rpm : 500 Speed rom Maximum rack trave: 3.30 rpm : 300 Speed Rack travel in mm: 9.15 Rack travel in mm: 6.25 rpm : 340...360 Speed LOW IDLE 2 Control lever position degrees: 21...27 Testing: rpm : 550 Speed Rack travel in mm: 0.00...1.70 Speed rpm : 600 Rack travel in mm : 0.00...1.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.00 rpm : 810...830 Speed STARTING FUEL DELIVERY Speed rpm : 250 Del.quantity cm3/ : 380.0... 1000 s: (-) Rack travel in mm: 24.00 LOW IDLE Speed rpm : 320 Rack travel in mm : 8.00 Del.quantity cm3/: 80.0...100.0 1000 s: (-) cm3 : 10.0Spread 1000 s: (15.0)

Remarks:
APPLICATION
Rail car

: 2.80...2.90 : (2.75...2.95) Prestroke mm BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : CUM Edition : 13.03.92 Replaces : 0-60-120-180-240-300 : ISO-4113 Phasing Test oil Tolerance $+ - \circ : 0.50 (0.75)$ Combination no. : 9 400 083 44900 Injection pump Time to cyl. no. : 1 Pump designation : PES6A100b320/3RS2691 : 9 410 230 025 BEGINNING OF DELIVERY DIFFERENCE EP type number Governor : RSV400...1100A2C2209 betw. rack trav. m: 9.00...12.00 Governor design. & maximum rack tra: 21.00 Difference °CS : 3.00...4.00 : 9 420 083 201 Governer no. BASIC SETTING Cust. part no. : 3354913 1st speed rpm: 1175 Customer-spec. information Customer : CLMMINS Rack travel in mm: 10.10...10.20 : 6 CT 8.3 L Engine Del.quantity cm3/: 8.7...8.9 : 129.1 1st version kW 100 s: (8.5...9.1) Rated speed : 2200 cm3 : 0.3TEST BENCH REQUIREMENTS Spread 100 s: (0.6) Test oil inlet temp. °C : 38...42 rpm : 400.02nd speed Rack travel in mm: 5.6...5.8 Overflow valve Del.quantity cm3/: 1.6...2.0 : 1 417 413 047 100 s: (1.4...2.3) cm3 : 0.3Spread Inlet press., bar: 1.50 100 s: (0.5) Test nozzle holder GUIDE SLEEVE POSITION : 0 681 343 009 assembly Control-lever position Degree: -3 Openina rpm : 800 : 172...175 pressure, bar Rack travel in mm : 0.30...0.70 Governor spring pre-tension Test lines : 1 680 750 014 Click setting x : 2.50Outside diameter FULL LOAD DELIV. AT FULL LOAD STOP x Wall thickness : 6.00x2.00x600 x Length mm 1st version (A) Injection pump setting values Speed rpm : 1175 87.5...89.5 1000 : (85.5...91.5) Insp. values in parentheses Del.quantity Set equal delivery quant. : 3.50 Spread cm3 per values _ 1000 : (6.00)BEGINNING OF DELIVERY

RATED SPEED

Test pressure, bar: 25...27

1st version Control lever

position degrees: 87...95

Testing:

1st rack travel in: 9.10

rpm : 1215...1225 Speed

2nd rack travel in: 4.00

Speed rpm : 1245...1275

4th rack travel in: 1400

rpm : 0.30...1.70 Speed

LOW IDLE 1

Control lever

position degrees: 62...70

Setting point w/out bumper spring

rpm : 400

Rack travel in mm: 5.2

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

rpm : 400 Speed

Rack travel in mm : 5.60...5.80

Rack travel in mm: 2.00

rpm : 570...630 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1175 1st speed

Rack travel in m: 10.10...10.20

2nd speed rpm : 500

Rack travel in m: 11.30...11.50

4th speed rpm : 800

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500 Del.quantity cm3/ : 90.5...93.5 1000 s: (88.0...96.0)

rpm : 800 Speed

Del.quantity cm3/ : 92.5...95.5

1000 s: (90.0...98.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

rpm : 1215...1225 Speed

STARTING FUEL DELIVERY

: 100 rom Speed

E23

Del.quantity cm3/: 135.0...149.0

1000 s: (132.0...152.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 16.5...20.5

1000 s: (14.0...23.0)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

Note remarks

: CUM 5,9 x : 24.10.91 Test sheet Edition : 09.91 Replaces

: ISO-4113 Test oil

: 9 400 083 459 Combination no.

Injection pump

Pump designation : PES6A95D12ORS2822 EP type number : 9 400 084 029

Governor

: ROV350...1250AB1235-Governor design.

: 9 420 080 311 Governer no.

Customer-spec. information : CUMMINS Customer

: 6 BT Engine

: 119.3 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2,75...2.85 Prestroke mm

: (2.70...2.90)

Rack travel in mm : 9.00...12.00

: 1-5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 8.6...8.8

100 s: (8.4...9.0)

cm3 : 0.3 Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.0...5.2

Del.quantity cm3/ : 0.6...1.0 100 s: (0.4...1.2)

cm3 : 0.3 Spread

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1300 1st speed

: 6.80...5.90 travel mm

: 350 2nd speed rom

1.20...1.70 travel mm

rpm : 700 3rd speed

: 4.00...4.50 travel mm

: 1550 4th speed rpm

: 8.30...8.20 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1530

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

Aneroid pressure h: 600

Del.quantity : 80.0...90.0)

: 3.50 cm3 Spread

1000 : (6.00) RATED SPEED

1st version

Control lever

position degrees: 107...115

Testina:

1st rack travel in: 11.70

rpm : 1310...1320 Speed

2nd rack travel in: 4.00

rpm : 1545...1575 Speed

4th rack travel in: 1750

rom : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 63...71

Testing:

; 100 Speed rpm Minimum rack trave: 7.00

Speed rpm : 350 Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

rpm : 475...575 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed mqn hPa : 600 Pressure

: 12.70...12.80 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.60...11.90 2nd pressure hPa : 320 Rack travel in m: 12.00...12.10

3rd pressure hPa : 410

Rack travel in m: 12.40...12.60

START CUT-OUT

1/min : 270 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 600 npm : 700 Speed

Del.quantity cm3/: 80.0...83.0

1000 s: (77.5...85.5)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 64.0...67.0 1000 s: (62.0...69.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

rpm : 1310...1320 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 bel.quantity cm3/ : 135.0...155.0

1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.00...5.20

Del.quantity cm3/: 6.0...10.0

1000 s: (4.0...12.0) cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Start-of-delivery mark at 10° cam

rotation angle after start of delivery,

cylinder 1

Note remarks

: FOR 7,8 i Test sheet Edition : 13.03.92 : 08.91 Replaces : ISO-4113 Test oil

: 9 400 087 419 Combination no.

Injection pump

Pump designation : PES6P120A720RS3234

: 9 400 087 068 EP type number

Governor

: RQV350...1150PA923-2 Governor design.

: 9 420 080 274 Governer no.

Customer-spec. information : FORD (FNH) Customer

: 7.8 Ltr Engine

1st version kW : 156.6 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 072

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 85...95

Test nozzle holder

: 1 688 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

Rack travel in mm : 9.00...12.00 Firing order

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.35...2.45 : (2.30...2.50)

: 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

Prestroke mm

rpm : 1150 1st speed

Rack travel in mm : 13.50...13.60

Del.quantity cm3/: 15.8...16.0

100 s: (15.5...16.3)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm : 5.6...5.8 Del.quantity cm3/ : 2.6...3.2

100 s: (2.4...3.4)

cm3 : 0.5 Spread 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1200 1st speed

: 9.50...9.70 travel mm

rpm : 1000 2nd speed

: 7.80...8.00 travel mm 3rd speed : 800 rom

: 6.40...6.80 travel mm

: 450 4th speed rom 3.80...4.00 travel mm

5th speed rom

: 350 : 2.20...2.50 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed Aneroid pressure h: 900

Del.quantity : 138.3...163.5)

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version Control lever

position degrees: 117...125

Testing:

1st rack travel in: 12.50

rpm:: 1210...1220 Speed

2nd rack travel in: 4.00

Speed rpm : 1335...1365 4th rack travel in: 1420

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 61...69

Testing:

rpm : 275 Speed Minimum rack trave: 6.70 rpm : 350 Speed

Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

rpm : 390...460 Speed

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

1st speed rpm : 1150 Rack travel in m: 13.50...13.60

rpm : 750 2nd speed

Rack travel in m: 12.40...12.60

3rd speed rpm : 550

Rack travel in m: 11.30...11.70

Aneroid/Altitude

Compensator Test

1st version

Setting

: 1150 Speed **CDM** hPa : 900 Pressure

: 13.50...13.60 Rack travel mm

Measurement

1/min : 1150 Speed

1st pressure hPa : - Rack travel in m: 8.50...8.90

2nd pressure hPa : 300 Rack travel in m: 10.10...10.20

3rd pressure hPa : 500

Rack travel in m: 12.20...12.60

STAR! CUT-DUT

1/min: 290 (310) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 : 750 rpm Speed

Del.quantity cm3/: 165.0...171.0

1000 s: (162.0...174.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 106.5...110.5

1000 s: (104.5...112.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.50

rpm : 1210...1220 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 150.0...190.0

1000 s: (146.0...194.0)

Rack travel in mm : 11.60...12.40

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 5.60...5.80

Del.quantity cm3/: 26.5...32.5 1000 s: (24.5...34.5) Spread cm3 : 5.00 1000 s: (3.00)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

Note remarks

Test sheet

Edition : 13.03.92

Replaces

Test oil : ISO-4113

Combination no. : 9 400 087 429

Injection pump

Fump designation : PES6P12DA72ORS3256-3

EP type number : 9 400 087 079

Governor

Governor design. : RQV300...1300PA963

Governer no. : 9 420 080 283

Customer-spec. information

: MERCEDES-BENZ Customer

: OM 366 LA Engine

: 156.6 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test rozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.00...3.10 Prestroke mm

: (2.95...3.15) Rack travel in mm : 21.00...0.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 4.80...5.40

Del.quantity cm3/: 1.7...2.0

100 s: (1.4...2.3)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 300.0 Rack travel in mm : 7.2...7.5

Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed : 0.80...1.30

travel mm rpm : 660 2nd speed

: 3.80...4.30 travel mm

rpm : 960 3rd speed

: 5.20...5.70 travel mm

riom : 1357 4th speed

: 8.00...8.50 travel mm

: 1492 5th speed rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1385 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1000Speed : 17.0...20.0 Del.quantity : (14.0...23.0) 1000 : 2.00 cm3 Spread : (3.00) 1000 Spread RATED SPEED Speed 1st version Control lever position degrees: 107...115 Spread Testing: 1st rack travel in: 10.80 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1420...1450 Speed 4th rack travel in: 1550 Spread rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 73...81 Testing: rpm : 100 Speed Minimum rack trave: 9.00 : 300 Speed Speed rpm Rack travel in mm : 7.30...7.50 STARTING FUEL DELIVERY CONSTANT REGULATION Speed rpm : 300...450 Speed Aneroid/Altitude Compensator Test LOW IDLE 1st version Setting rpm : 500 Speed hPa : 1100 Pressure : 11.80...12.00 Rack travel mm Spread Measurement $1/\min : 500$ Speed Remarks: 1st pressure hPa : -Rack travel in m: 9.30...9.60 2nd pressure hPa : 300 Rack travel in m: 10.00...10.20 3rd pressure hPa : 600 Rack travel in m: 11.20...11.40 START CUT-OUT 1/min: 220 (240) Speed

1st version Aneroid pressure h: 1100 Speed rpm : 1300 Del.quantity cm3/: 157.0...159.0 1000 s: (154.0...162.0) : 8.00 cm31000 s: (12.0) Aneroid pressure h: 1100 rpm : 800 Del.quantity cm3/: 141.0...147.0 1000 s: (138.0...150.0) cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -: 500 rpm Del.quantity cm3/: 55.0...57.0 1000 s: (52.0...60.0) cm3 : 8.001000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.80 rpm : 1340...1350

rpm : 100 Del.quantity cm3/: 90.0...110.0 1000 s: (86.0...114.0)

Speed rpm : 300 Rack travel in mm : 7.20...7.50 Del.quantity cm3/: 10.0...16.0 1000 s: (7.0...19.0)

cm3 : 8.00 1000 s: (12.00)

Start-of-delivery blocking at start of delivery of cylinder no. 1.

FUEL DELIVERY CHARACTERISTICS

Note remarks

Test sheet

: 13.03.92 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 9 400 087 430

Injection pump

Pump designation : PES6P120A720RS3256-3

: 9 400 087 079 EP type number

Governor

Governor design. : RQV300...1300PA963-1

Governer no. : 9 420 080 284

Customer-spec. information

: MERCEDES-BENZ Customer

: OM 366 LA Engine

: 171.5 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Openina

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.00...3.10 Prestroke mm

: (2.95...3.15)

Rack travel in mm : 21.00...0.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 4.80...5.40

Del.guantity cm3/ : 1.7...2.0

100 s: (1.4...2.3)

cm3 : 0.2Spread

100 s: (0.3)

2nd speed rpm : 300.0 Rack travel in mm : 7.2...7.5

Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.9)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 3001st speed

: 0.80...1.30 travel mm

2nd speed rpm : 660

: 3.80...4.30 travel mm

rpm : 960 3rd speed

: 5.20...5.70 travel mm

rpm : 1357 4th speed

: 8.00...8.50 travel mm

rpm : 1492 5th speed

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1385 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version : 1000 Speed rpm Del.quantity : 17.0...20.0 1000 : (14.0...23.0) : 2.00 cm3 Spread 1000 : (3.00)RATED SPEED 1st version Control Lever position degrees: 107...115 Testing: 1st rack travel in: 11.60 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1430...1460 Speed 4th rack travel in: 1550 rom : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 73...81 Testing: Speed : 100 rpm Minimum rack trave: 9.00 : 300 rpm Rack travel in mm : 7.30...7.50 CONSTANT REGULATION rpm : 300...450 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : 1200 Pressure Rack travel mm : 12.60...12.80 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.30...9.60 2nd pressure hPa : 300 Rack travel in m: 10.00...10.20 3rd pressure hPa : 700 Rack travel in m: 11.60...11.80 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200 rpm : 1300 Speed Del.quantity cm3/: 177.0...179.0 1000 s: (174.0...182.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1200 : 800 Speed rpm Del.quantity cm3/: 159.0...165.0 1000 s: (156.0...168.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 55.0...57.0 1000 s: (52.0...60.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY** 1st version

1mm rack travel less than

full load rack tr: 11.60 rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100.0...120.0 1000 s: (96.0...124.0)

LOW IDLE

Speed rpm Rack travel in mm : 7.20...7.50 Del.quantity cm3/: 10.0...16.0 1000 s: (7.0...19.0) : 8.00 Spread cm3 1000 s: (12.00)

Remarks:

Start-of-delivery blocking at start of delivery of cylinder no. 1.

Note remarks

Test sheet

: 13.03.92 Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 400 087 433

Injection pump

Pump designation : PES6P120A720LS7176

: 0 412 726 821 ZP type number

Governor

Governor design. : RQ300/1050PA911-4

Governer no. : 9 420 080 318

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M447 A Engine

: 210.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.50...14.70

Del.quantity cm3/: 21.5...21.7

100 s: (21.2...22.0)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 6.0...6.4

Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.9)

cm3 : 0.6

Spread 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 800

: 215.5...217.5 Del.quantity

1000 : (212.5...220.5)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm: 20.0

Testina: 1st rack travel in: 12.60 rpm : 1095...1110 2nd rack travel in: 4.00 Speed rpm : 1160...1190 4th rack travel in: 1260 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm Rack travel in mm: 6.2 Testing: : 200 Speed rpm Minimum rack trave: 7.70 : 300 riom Rack travel in mm : 6.00...6.40 Rack travel in mm: 2.00 : 380...420 Speed rom TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 1050
Rack travel in m: 13.60...13.80
2nd speed rpm : 750 Rack travel in m: 14.80...15.00 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rpm hPa : 800 Pressure : 14.50...14.70 Rack travel mm Measurement $1/\min : 600$ Speed 1st pressure hPa : 300 Rack travel in m: 11.80...12.00 2nd pressure hPa : 550 Rack travel in m: 13.50...13.70 3rd pressure hPa : 1050 Rack travel in m: 14.70...14.80 4th pressure hPa : -Rack travel in m: 10.70...11.00 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version

Aneroid pressure h: 1200 Speed rpm : 1050 Del.quantity cm3/ : 192.5...196.5 1050 1000 s: (189.5...199.5) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm Del.quantity cm3/: 220.0...223.0 1000 s: (217.0...226.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 131.0...133.0 1000 s: (128.0...136.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.60 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 205.0...225.0 1000 s: (201.0...229.0)

Remarks:

F05

Note inst. in remarks column

ect in at adjusting nut (46) Test scheet

: 16.04.92 **Fdition**

replaces

Calibrating oil : ISO-4113

: VE3/10F1600L483 e c Injection pump

: 0 460 403 016 ld-Type number

Customer Part-No. :

Customer-specific information

: VM Customer

: HR 394 H Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00

mm: 450 x Length

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1200 Speed

Setting value mm: 2.50...2.90

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1200 Speed

Setting value bar: 5.30...5.90

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1200 Speed

Del. quantity cm3/ 1000s.: 45.00...46.00

Shutoff

electromagnet Volt: 12 cm3/: 3.0 Dispersion

1000s.: (3.0)

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/ 1000s.: 10.50...14.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

1/min: 1720 Speed

Del. quantity cm3/ 1000s.: 21.00...27.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 60.00...100.00

1000s.: 60.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Ini.-aty.dif.measurement:

1/min: 1200 Speed

Inj.-qty. cm3/

difference 1000S.: 18.00...26.00

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement

correttore anticipo iniezione (SV) 1.Speed 1/min: 1200

TD-travel

mm: 0.80...1.00 difference

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1600 2nd speed

TD travel

mm: 4.10...4.90 mm: (3.80...5.20)

Del. quantity cm3/: 37.00...47.00 1000S.: (36.00...48.00) 9th speed 1/min: 1600 Shutoff electromagnet Volt: 12
3rd speed 1/min: 1200
TD travel mm: 2.50...2.90 9th speed Shutoff electromagnet Volt: 12
Del. quantity cm3/: 44.00...47.00
1000s.: (42.50...48.50)
12th speed 1/min: 1200 mm: (2.00...3.40) Shutoff Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 45.50...46.50 1000s.: (43.50...48.50) Shutoff electromagnet Volt: 12 1/min: 600 20th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 46.00...49.00 1000S.: (44.50...50.50) 2nd speed 1/min: 600 Supply-pump bar: 2.80...3.40 pressure Mech. shutoff: Shutoff electromagnet Volt: 12 1/min: 1200 Electr. shutoff: 3rd speed Supply-pump bar: 5.30...5.90 1/min: 400 1st speed pressure Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 12 4th speed 1/min: 1600 Shutoff 4th speed electromagnet volt: -Supply-pump bar: 7.00...7.60 pressure Idle delivery: Shutoff electromagnet Volt: 12 1/min: 400 1st speed Shutoff Overlow quantity at overflow valve: electromagnet Volt: 12
Del. quantity cm3/: 10.50...14.50
1000s.: (8.50...16.50)
Dispersion cm3/: 3.5
1000s.: (3.5)
2nd speed 1/min: 550 1/min: 600 1st speed Shutoff electromagnet Volt: 12 : 41.70...83.40 Overflow cm3/10s: (26.70...98.40) 1/min: 1600 quantity Shutoff 2nd speed Shutoff electromagnet Volt: 12 Overflow: 55.60...139.00 3rd speed Shutoff cm3/10s: (40.60...153.00) quantity electromagnet Volt: 12 Del. quantity cm3/: 2.00...8.00 1000s.: (1.00...9.00) Delivery-quant. and breakaway char.: 1/min: 1800 2nd speed Load-dependent start of delivery: Shutoff electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
1000s.: (0.00...3.00)
5th speed 1/min: 1720 Inj.-qty.dif.measurement: 1/min: 1200 1st speed Inj.-qty. cm3/ : 15.0...17.0 * difference 1000s.: (15.00...17.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 21.00...27.00 1000s.: (18.00...30.00) Shutoff 1/min: 1650 8th speed Shutoff electromagnet Volt: 12

Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1/min: 1200 1st speed : 0.80...1.00 # TD-travel difference mm: (0.80...1.00) Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1/min: 1200 1st speed Supply pump-: 0.10...0.30 * pressure bar: (0.10...0.30) difference Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 200 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.00...95.00 1000s.: (65.00...95.00) 1/min: 500 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...55.00 1000s.: (35.00...55.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 60.00...100.00 1000s.: (60.00...100.00) Shutoff electromagnet: Cut-in : 10.0 min voltage : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: 3.2...3.4 mm: 5.8...6.2 K KF mm: 0.6...1.0 MS Remarks:

Note inst. in remarks column

Test scheet

: 14.04.92 **Edition** : 18.02.91 replaces : ISO-4113 Calibrating oil

: VE4/10F1600L352 Injection pump Type number : 0 460 404 061

Customer Part-No. :

Customer-specific information : VM

Customer

: HR 494 HP Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Openina

bar: 147.00...150.00 Pressure

Test ini. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1200 Speed

Setting value mm: 1.90...2.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1200 Speed

Setting value bar: 4,80...5.40

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1200 Speed

Del. quantity cm3/

1000s.: 44.50...45.50

Shutoff.

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000s.: (3.5)

Low-idle speed regulation

1/min: 400

Del. quantity cm3/ 1000s.: 11.50...15.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

1/min: 1650 Speed

Del. quantity cm3/ 1000s.: 27.00...33.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 45.00...85.00

1000s.: 45.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1200 Speed

cm3/Inj.-qty.

difference 1000s.: 10.00...18.00

Shutoff

electromagnet Volt: -TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1200 1.Speed

TD-travel

mm: 0.90...1.10 difference

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:	1000s.: (24.0036.00)
2nd speed 1/min: 1600	8th speed 1/min: 1625
2nd speed 1/min: 1600	Shutoff
TD travel mm: 3.604.40	electromagnet Volt: 12
mm: (3.304.70)	Del. quantity cm3/: 33.5041.50
Shutoff	1000c
electromagnet Volt: 12	10008.: -
3rd speed 1/min: 1200	9th speed 1/min: 1600
TD travel mm: 1.902.30	- Shutoff
mm: (1.402.80)	f electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 38.0041.00
electromagnet Volt: 12	10008.: (36.5042.50)
4th speed 1/min: 1000 -	12th speed 1/min: 1200
TD travel mm: 0.701.50	+ Shutoff
mm: (0.40,1.80)	electromagnet Volt: 12
Shutoff	Del. quyntity cm3/: 44.5045.50 1000S:: (42.0048.00)
electromagnet Volt: 12	1000S.: (42.0048.00)
•	20th speed 1/min: 600
Supply-pump pressure characteristic:	+ Shutoff
•	+ electromagnet Volt: 12
2nd speed 1/min: 600	Del. quantity cm3/: 43.5046.50
Supply-pump -	1000s.: (42.0048.00)
pressure bar: 2.403.00	+
Shutoff	<pre>→ Mech. shutoff:</pre>
electromagnet Volt: 12	i Mech. Abstellung:
3rd speed 1/min: 1200	+
Supply-pump	- 1st speed 1/min: 1600
pressure bar: 4.805.40	Del. quantity cm3/: 0.003.00
Shutoff	10008.: (0.003.00)
electromagnet Volt: 12	+ Shutoff
C CCCC CHAMBER CC ACCC 12	
4th speed 1/min: 1600	The state of the s
4th speed 1/min: 1600	electromagnet volt: 12
4th speed 1/min: 1600 Supply-pump	electromagnet volt: 12
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00	The state of the s
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff	electromagnet volt: 12 Electr. shutoff:
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve:	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: -
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery:
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40)	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600 Shutoff	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600 Shutoff electromagnet Volt: 12	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.5015.50
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.5015.50
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600 Shutoff electromagnet Volt: 12	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.5015.50 1000s.: (9.5017.50) Dispersion cm3/: 3.5
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00)	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.5015.50 1000s.: (9.5017.50) Dispersion cm3/: 3.5 1000s.: (3.5)
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.5015.50 1000s.: (9.5017.50) Dispersion cm3/: 3.5 1000s.: (3.5) 2nd speed 1/min: 480
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00)	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.5015.50 1000s.: (9.5017.50) Dispersion cm3/: 3.5 1000s.: (3.5) 2nd speed 1/min: 480 Shutoff
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.:	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.5015.50 1000s.: (9.5017.50) Dispersion cm3/: 3.5 1000s.: (3.5) 2nd speed 1/min: 480 Shutoff electromagnet Volt: 12
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 3rd speed 1/min: 1700	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.5015.50 1000s.: (9.5017.50) Dispersion cm3/: 3.5 1000s.: (3.5) 2nd speed 1/min: 480 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.008.00
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 3rd speed 1/min: 1700 Shutoff	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.5015.50 1000s.: (9.5017.50) Dispersion cm3/: 3.5 1000s.: (3.5) 2nd speed 1/min: 480 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.008.00 1000s.: (1.009.00)
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 3rd speed 1/min: 1700 Shutoff electromagnet Volt: 12	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.5015.50 1000s.: (9.5017.50) Dispersion cm3/: 3.5 1000s.: (3.5) 2nd speed 1/min: 480 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.008.00 1000s.: (1.009.00) 3rd speed 1/min: 550
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 3rd speed 1/min: 1700 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.5015.50 1000s.: (9.5017.50) Dispersion cm3/: 3.5 1000s.: (3.5) 2nd speed 1/min: 480 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.008.00 1000s.: (1.009.00) 3rd speed 1/min: 550 Shutoff
Ath speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 3rd speed 1/min: 1700 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 10000s.: (0.003.00)	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.5015.50 1000s.: (9.5017.50) Dispersion cm3/: 3.5 1000s.: (3.5) 2nd speed 1/min: 480 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.008.00 1000s.: (1.009.00) 3rd speed 1/min: 550 Shutoff electromagnet Volt: 12
4th speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 3rd speed 1/min: 1700 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s: (0.003.00) 5th speed 1/min: 1650	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.5015.50 1000s.: (3.5) 2nd speed 1/min: 480 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.008.00 1000s.: (1.009.00) 3rd speed 1/min: 550 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00
Ath speed 1/min: 1600 Supply-pump pressure bar: 6.407.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1600 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 3rd speed 1/min: 1700 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 10000s.: (0.003.00)	electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.5015.50 1000s.: (9.5017.50) Dispersion cm3/: 3.5 1000s.: (3.5) 2nd speed 1/min: 480 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.008.00 1000s.: (1.009.00) 3rd speed 1/min: 550 Shutoff electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1200 3rd speed cm3/: 10.00...18.00 Inj.-qty. difference 1000s.: -TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1200 TD-travel : 0.90...1.10 TD-travel difference mm: -Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 250 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 50.00...80.00 1000s.: (50.00...80.00) 1/min: 450 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...60.00 1000s.: (40.00...60.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...85.00 1000s.: (45.00...85.00) Shutoff electromagnet: Cut-in : 10.0 min voltage : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: 3,2...3,4 mm: 5,7...5,9 K KF mm: 0,6...1,0MS mm: 1,3 SVS max. mm: 17,0...19,0 XK mm: 14,2...17,6 XL Remarks:

Note inst. in remarks column

: VMA 2,2 F1 : 14.04.92 Test scheet Edition : 18.02.91 replaces : ISO-4113 Calibrating oil

: VE4/10F2100L269-1 Injection pump : 0 460 404 065 Type number

Customer Part-No. :

Customer-specific information

Customer

: HR 492,4 HJ Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer: 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening .

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed Charge press. hPa: 1000

Setting value mm: 1.50...1.90

electromagnet Volt: 12

Supply-pump pressure

1/min: 1000 Speed Charge press hPa: 1000

Setting value bar: 4.40...5.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Speed Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 66.00...67.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0

1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700

Del. quantity cm3/ 1000s.: 45.00...46.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 450 Speed

Del. quantity cm3/ 1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 2300 hPa: 1000 Charge press

Del. quantity cm3/ 1000s.: 27.00...33.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 47.00...67.00

1000s.: 47.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1/min: 1500 Speed

Inj.-qty. cm3/

difference 1000S.: 8.00...14.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo i 1.Speed 1/min: 1	iniezione (SV) + 1500 +	0	Ind speed Charge press	1/min: s. hPa:	2100 1000
	0.901.10	€	Shutoff Lectromagne	t Volt:	12
Shutoff electromagnet Volt: '	12	Ċ	vertiow quantity (cm3/10s:	55.60139.00 (40.60154.00)
Inspection-pump test Test specifications	specifications in parentheses	C	elivery-qua	ant. and	breakaway char.
Timing-device charact	teristic:		nd speed		
2nd speed 1/min: 2	$_{2100}$ I		Charge-air p point	hPa:	450
Charge press hPa:	1000		Shutoff	111 41.	450
TD travel mm:	7.107.90		electromagne	et Volt:	12
in cidaec ini.	(6.808.20)	·	el quanti	tv cm3/:	58.5059.50
Shutoff			your quarior.	1000s.:	(56.5061.50)
electromagnet Volt:	12	. 3	3rd speed		
3rd speed 1/min:	inn 1		charge press		
Charge press hPa:			Shutoff		
TD travel mm:	1 50 1 90		electromagne	et Volt:	12
am.	(1.002.40)	. [Del guanti	tv cm3/:	0.008.00
Shutoff			40.00	10003.:	(0.008.00)
electromagnet Volt:	12		5th speed		2300
5th speed 1/min:	1500	. (Charge pres	s. hPa:	1000
Charge press. hPa:	1000		Shutoff	• • • • • • • • • • • • • • • • • • • •	
TD travel mm:	4.104.90		electromagn	et Volt:	12
יים	(3.805.20)	- 1	Del guanti	tv cm3/:	27.0033.00
Shutoff		. `	o to apartition	1000s.:	(26.0034.00)
electromagnet Volt:	12	. (9th speed		
cccci anagrice roces	1		Charge pres		
Supply-pump pressure	characteristic:		Shutoff		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
outper) pump pressure	Character (Server	- (electromagn	et Volt:	12
1st speed 1/min:	21M	.]	Dei quanti	tv cm3/:	12 56.5059.50
Charge press. hPa:		. '	out quare.	1000s.:	(55.0061.00)
Supply-pump	1000	- '	12th speed	1/min:	1500
pressure bar:	7.508.10	. (Charge pres	s hPa:	1000
Shutoff		- :	Shutoff		
electromagnet Voit:	12	. ;	electromagn	et Volt:	12
2nd speed 1/min:	1000	- 1	Del. auvnti	ty cm3/:	66.0067.00
Charge press. hPa:		-	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1000s.:	(64.5068.50)
Supply-pump	1000	-	18th speed		
pressure bar:	4.405.00		Shutoff		
Shutoff		- 1	electromagn	et Volt:	12
electromagnet Volt:	12	-	Del. quanti	ty cm3/:	45.0046.00
3rd speed 1/min:		-	• • •	1000s.:	(43.0048.00)
Charge press. hPa:		-	20th speed	1/min:	700
Supply-pump	-	-	Charge pres	s. hPa:	1000
pressure bar:	3.604.20		Shutoff		
Shutoff	-		electromagn	et Volt:	12
electromagnet Volt:	12	_	Del. quanti	ty cm3/:	67.7070.70
orest, chag, to term	· · ·	-	•	1000s.:	(66.2072.20)
Overlow quantity at	overflow valve:	•			
3,5,50% 477,10,0% 72		_	Mech. shuto	ff:	
1st speed 1/min:	700	_			
Charge press. hPa:		<u> </u>	Electr. shu	rtoff:	
Shutoff	. ·	-			
electromagnet Volt:	12	-	1st speed	1/min:	450
Overflow :	41.7083.40	-	Del. quanti	ty cm3/:	0.003.00
quantity cm3/10s:		-	•	1000s.:	(0.003.00)
		-			

Idle delivery:

1/min: 450 1st speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 13.00...17.00 1000s.: (10.00...20.00) Dispersion cm3/: 3.0 1000s.: (3.0) 2nd speed 1/min: 475

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 7.00...13.00 1000s.: (5.00...15.00)

1/min: 550 4th speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 0.50...5.50 1000s.: (0.50...5.50)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1500 Inj.-qty. cm3/ : 3.00...5.00 difference 1000S.: -

Shutoff

electromagnet Volt: 12

1/min: 1500 3rd speed

cm3/: 8.00...14.00 Inj.-qty.

difference 1000s.: -

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1/min: 1500 1st speed

TD-travel : 0.90...1.10

difference mo: -

Shutoff

electromagnet Volt: 12

SP press.—dif.measurement:

pompa di mandata (FP):

1/min: 1500 1st speed

Supply pump-

: 0.10...0.30 pressure

difference bar: -

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1/min: 400 1st speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 52.00...72.00 1000s.: (52.00...72.00)

1/min: 550 2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 40.00...60.00

1000s.: (40.00...60.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 47.00...67.00 1000s.: (47.00...67.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 : 12,0 🗪 Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3,2...3,4 Κ KF mm: 5,6...6,0

mm: 0,6...1,0 MS mm: 20,0...22,0 XK

mm: 10,0...13,4 XL

Remarks:

Operate control lever after each

manifold-pressure compensator pressure change.

F14

Note inst. in remarks column

Test scheet : 14.04.92 Edition

: 18.02.91 replaces : ISO-4113 Calibrating oil

: VE4/10F2050R364 Injection pump : 0 460 404 066 Type number

Customer Part-No. :

Customer-specific information

Customer : SOFIM

: 8140.67.2580 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temo.

with thermometer: 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

mm: 0,2 Prestroke

(from BDC): +0.02(0.04)

Injection pump setting values Test specifications in parentheses

Timing device travel

1/min: 1000 Speed

Setting value mm: 3.10...3.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1009 Speed

Setting value bar: 4.50...5.10

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 2000 Speed

Del. quantity cm3/

1000s.: 35.00...36.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 10005.: (3.0)

Low-idle speed regulation

1/min: 375

Del. quantity cm3/ 1000s.: 14.00...18.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 10005:: (3.0)

Full-load speed regulation

1/min: 2200 Speed

Del. quantity cm3/ 1000s.: 13.00...19.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 70.00...100.00 mind 1000s.: 70.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Ini.-qty.dif.measurement:

1/min: 1000 Speed

cm3/Inj.-qty.

difference 1000s.: 20.00...26.00 *

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement correttore anticipo iniezione (SV)

1/min: 1000 1.Speed

TD-travel

mm: 0.40...0.60 * difference

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

	1
Timing-device characteristic:	+ Del. quantity cm3/: 0.003.00 + 1000S.: (0.003.00)
2l	
2nd speed 1/min: 1800 TD travel mm: 7.308.10	+ 5th speed 1/min: 2200 + Shutoff
TD travel mm: 7.308.10 mm: (7.008.40)	+ electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 13.0019.00
electromagnet Volt: 12	10005:: (12.0020.00)
3rd speed 1/min: 1606	8th speed 1/min: 2150
To travel mm: 3.103.50	+ Shutoff
mm: (2.604.00)	electromagnet Volt: 12
Shutoff	- Del. quantity cm3/: 23,5030,50
electromagnet Volt: 12	1000s.: -
4th speed 1/min: 600	12th speed 1/min: 2000
TD travel mm: 0.801.60	+ Shutoff
mm: (0.501.90)	+ electromagnet Volt: 12
Shutoff	Pel. quyntity cm3/: 35.0036.00
electromagnet Volt: 12	+ 1000S.: (33,5037,50)
5th speed 1/min: 2000	+ 15th speed 1/min: 1000
TD travel mm: 8.209.00	+ Shutoff
mm: (7.909.30)	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 38.5041.50
electromagnet Volt: 12	10005.: (37.5042.50)
	† 17th speed 1/min: 600
Supply-pump pressure characteristic:	+ Shutoff
4	+ electromagnet volt: 12
1st speed 1/min: 2000	Del. quantity cm3/: 31.5034.50
Supply-pump	1000H.: (30.5035.50)
pressure bar: 7.007.60	+ 20th speed 1/min: 500
Shutoff 12	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
2nd speed 1/min: 1000	pel. quantity cm3/: 31.5034.50 1000s.: (29.5036.50)
Supply-pump pressure bar: 4.505.10	10003 (27.5050.507
1	F Mech. shutoff:
Shutoff electromagnet Volt: 12	I heth. shatorr.
3rd speed 1/min: 500	+ Electr. shutoff:
Supply-pump	Lector. Silutorii
pressure bar: 3.504.10	1st speed 1/min: 375
Shutoff	Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	1000s.: (0.003.00)
	↓ Shutoff
Overlow quantity at overflow valve:	<pre>+ electromagnet volt: -</pre>
•	+
1st speed 1/min: 500	† Idle delivery:
Shutoff	+
electromagnet Volt: 12	- 1st speed 1/min: 375
Overflow : 41.7083.40	+ Shutoff
quantity cm3/10s: (26.7098.40)	+ electromagnet Volt: 12
2nd speed 1/min: 2000	+ Del. quantity cm3/: 14.0018.00
Shutoff 42	1000s.: (11.0021.00)
electromagnet Volt: 12	+ Dispersion cm3/: 3.0
Overflow : 55.60139.00	1000S.: (3.0) 2nd speed 1/min: 400
quantity cm3/10s: (40.60154.00)	
Delifume much and breakering shape	+ Shutoff + electromagnet Volt: 12
Delivery-quant. and breakaway char.:	bel. quantity cm3/: 7.0013.00
	1000S.: (5.0015.00)
3rd speed 1/min: 2330	4th speed 1/min: 465
Shutoff	- Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
Coottoning to total 12	i assessi amagisas vasas sa

Del. quantity cm3/: 0.00...2.00 mm: 5,6...6,0 mm: 1,6...2,0 mm: 1,9 KF 1000s.: (0.00...2.00) MS Load-dependent start of delivery: SVS max. Inj.-qty.dif.measurement: Remarks: 1/min: 1000 1st speed Inj.—qty. cm3/ : 19.0...21.0 # Shutoff electromagnet Volt: 12 2nd speed 1/min: 1000 cm3/: + 4.0...6.0Inj.-qty. difference 1000S .: -TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1000 : 0.80...1.80 ' TD-travel difference men: -Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1000 Supply pump-: 0.10...0.30 # pressure bar: difference Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 400 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 48.00...68.00 1000s.: (48.00...68.00) 1/min: 500 2nd speed Shucoff electromagnet Volt: 12 Del. quantity cm3/: 28.00...38.00 1000s.: (28.00...38.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...100.00 1000s.: (70.00...100.00) Shutoff electromagnet: Cut-in min voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation

Note inst. in remarks column

: VMA Test scheet

: 10.03.92 Edition

replaces

Calibrating oil : 1SO 4113

: VE4/10F2100L414-1 Injection pump

: 0 460 404 073 Type number

Customer-specific information

Customer

: HR 425 CLIRS Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Charge press. hPa: 1000 Setting value mm: 1,2...1,6

Shutoff

electromagnet Volt: 12,0

Supply-pump pressure

1/min: 1000 Speed

F18

Charge press hPa: 1000 Setting value bar: 4,7...5,3

Shutoff

electromagnet Volt: 12,0

Full-load del. with charge press.:

1/min: 1500 Speed Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 65,5...66,5

Shutoff

electromagnet Volt: 12,0 Dispersion cm3/: 3,0 1000s.: -

Full-load del. w/out charge press.:

1/min: 700 Speed Del. quantity cm3/

1000s.: 43,0...44,0

Shutoff

electromagnet Volt: 12,0

Low-idle speed regulation

1/min: 450 Speed Charge press hPa: -Del. quantity cm3/

1000s.: 13,0..17,0

Shutoff

electromagnet Volt: 12,0 Del. quantity cm3/: 3,0 1000s.: -

Full-load speed regulation

1/min: 2300 Speed Charge press hPa: 1000 Del. quantity cm3/

1000s.: 40,0...46,0

Shutoff

electromagnet Volt: 12,0

Start:

1/min: 100 Speed Charge press hPa: -Del. quantity cm3/: -mind 1000s.: 35,0

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1500 Speed Charge press hPa: cm3/Ini.-aty.

difference 1000s.: 7,0...9,0

Shutoff

electromagnet Volt: 12,0

SP pressdif.measurement	+ Overflow : 41,683,3
pompa di mandata (FP)	4 quantity cm3/10s: (26,698,3)
1. Speed 1/min: 1500	+ 2nd speed 1/min: 2100
Charge press hPa:	Charge press. hPa: 1000
Supply pump	+ Shutoff
	electromagnet Volt: 12,0
pressure	Overflow : 55,5138,8
difference bar: 0,10,3	+ Overflow : 55,5138,8 + quantity cm3/10s: (40,5153,3)
Shutoff	+ quantity cmb/ lus: (40,5155,5)
electromagnet Volt: 12	
	† Delivery-quant. and breakaway char.:
Inspection pump test specifications	+
Test specifications in parentheses	+
	1 1nd speed 1/min: 700
Timing-device characteristic:	+ Charge-air pressure-setting
THISTING GEATER CHAINCECT INCIDE.	+ point hPa: 350
1-4 1/min. 1000	LDA-stroke mm: 7,0
1st speed 1/min: 1000	
Charge press hPa: 1000	+ Shutoff
TD travel mm: 1,21,6	+ electromagnet Volt: 12,0
mm: (0,72,1)	Del. quantity cm3/: 55,556,5 10003:: (53,558,5)
electromagnet Volt: 12.0	+ 1000S.: (53,558,5)
2nd speed 1/min: 1500	+ 2nd speed 1/min: 2500
Charge press hPa: 1000	Charge press. hPa: 1000
TD travel mm: 4,04,8	+ Shutoff
TD travel mm: 4,04,8	F electromagnet Volt: 12,0
mm: (3,75,1)	
Shutoff	† Del. quantity_cm3/: 0,08,0
electromagnet Volt: 12,0	1000s.: -
3rd speed 1/min: 2100	+ 3rd speed 1/min: 2300
Charge press hPa: 1000	+ Charge press. hPa: 1000
TD travel mm: 7,07,8	1 Shutoff
mm: (6,78,1)	electromagnet Volt: 12,0
SIRII. CO/1O/17	Dei. quantity cm3/: 41,045,0
Shutoff	1000c : (70.0
electromagnet Volt: 12,0	1000s.: (39,047,0)
	+ 4th speed 1/min: 2100
Supply-pump pressure characteristic:	+ Charge press. hPa: 1000
	+ Shutoff
1st speed 1/min: 700	+ electromagnet Volt: 12,0
Charge press. hPa: 1000	+ Del. quantity cm3/: 63,066,0
	1000s.: (61,567,5)
Supply-pump pressure bar: 3,84,4	+ 5th speed 1/min: 1500
	Charge press. hPa: 1000
Shutoff	T charge press. Hra. 1000
electromagnet Volt: 12,0	+ Shutoff
2nd speed 1/min: 1000	+ electromagnet Volt: 12,0
Charge press. hPa: 1000	+ Del. quantity cm3/: 65,566,5
Supply-pump	1000s.: (64,068,0)
pressure bar: 4,75,3	+ 6th speed 1/min: 700
Shutoff	+ Charge press. hPa: 1000
electromagnet Volt: 12,0	Shutoff
	+ electromagnet Volt: 12,0
3rd speed 1/min: 2100	T etectionagnet voct. 1270
Charge press. hPa: 1000	+ Del. quantity cm3/: 65,568,5
Supply-pump	1000s.: (64,070,0)
pressure bar: 7,68,2	+ 7th speed 1/min: 700
Shutoff	Charge press. hPa: -
electromagnet Volt: 12,0	+ Shutoff
, , , , , , , , , , , , , , , , , , ,	+ electromagnet Volt: 12,0
Overlow quantity at overflow valve:	Del. quantity cm3/: 43,044,0
OACI COM HORITETCY OF DACK LOW ACCACE	10005.: (41,046,0)
1-4 -mand 1/min. 700	1
1st speed 1/min: 700	T Nach chitaffe
Charge press. hPa: 1000	<pre># Mech. shutoff:</pre>
Shutoff	9
	+
electromagnet Volt: 12,0	Electr. shutoff:

1/min: 450 1st speed Charge press. hPa: -Del. quantity cm3/: 0,0...3,0 1000s.: -Idle delivery: 1/min: 450 1st speed Shuto?f electromagnet Volt: #12,0 Del. quantity cm3/: 13,0...17,0 1000s.: (10,0...20,0) 1/min: 500 2nd speed Shuroff electromagnet Volt: 12,0 Del. quantity cm3/: 2,5...7,5 1000s.: (2,0...8,0) 1/min: 600 3rd speed Shutoff electromagnet Volt: 12,0 Del. quantity cm3/: 0,0...5,0 1000s.: -Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1500 1st speed Charge press. hPa: -Inj.-qty. cm3/ : 13,0...19,0 * difference 1000s.: -Shutoff electromagnet Volt: 12,0 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1500 Charge press. hPa: -TD-travel : 1,4...1,6 Shutoff electromagnet Volt: 12,0 Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) mm: 12,0 Spacing 1/min: 1000 1st speed Charge press. hPa: 1000 Shutoff electromagnet Volt: 12,0 Del. quantity cm3/: 42,5...44,5 1000s.: (41,0...46,0) Automatic starting fuel delivery: 1st speed 1/min: 400

Shutoff electromagnet Volt: 12,0 Del. quantity cm3/: 45,0...65,0 1000s.: -1/min: 550 2nd speed Charge press. hPa: -Shutoff electromagnet Volt: 12,0 Del. quantity cm3/: 25,0...45,0 1000s.: -Shutoff electromagnet: Cut-in min voltage : 12,0 Rated voltage Mounting and assembly dimensions: Designation mm: 3,2...3,4 mm: 5,2...5,6 KF mm: 0,6...1,0MS SVS max. mm: 4,3 nm: 7,0 LDA stroke Ajustement Potentiometer: Anale for °: 45 pot. Supply voltage volt: 5,0 pot. Output volt volt: 2,95 pot. Remarks: Overflow restriction 0.55 mm - Part No. ..303

Charge press. hPa: -

Note inst. in remarks column

Test scheet : PER Edition : 09.04.92 : 13.09.91 replaces : ISO-4113 Calibrating oil

: VE4/11F2250R413 Injection pump : 0 460 414 082 Type number

Customer Part-No. :

Customer-specific information : PERKINS Customer

: T 4.20 (V) Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil return teno.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mn: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block Piston stroke mm: 1,2 mm: +0,02(0,06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 800

Setting value mm: 4.00...4.40

AFB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed Charge press hPa: 800

Setting value bar: 7.30...7.90

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Speed Charge press. hPa: 800

Del. quantity cm3/ 1000s.: 66.50...67.50

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 625 Speed

Del. quantity cm3/ 1000s.: 29.50...30.50

11

KSB/AFB

valve Volt: 12

Shucoff

electromagnet Volt: 12 Dispersion cm3/: 4.01000s.: (4.0)

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/

1000s.: 9.00...11.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (4.0)

Full-load speed regulation

1/min: 2525 Charge press hPa: 800

Del. quantity cm3/ 1000s.: 23.50...25.50

KSB/AFB Supply-pump pressure characteristic: Volt: 12 valve Shutoff 1/min: 1000 1st speed electromagnet Volt: 12 Charge press. hPa: 800 Supply-bump Start: bar: 6.00...6.60 pressure KSB/AFB 1/min: 100 Speed Del. quantity cm3/: 70.00...100.00 mind 1000s.: 70.00 Volt: 12 valve Shutoff electromagnet Volt: 12 2nd speed 1/min: 1500 KSB/AFB 2nd speed Valve Volt: 12 Charge press. hPa: 800 Shutoff Supply-pump electromagnet Volt: 12 bar: 7.30...7.90 pressure KSB/AFB Inspection pump test specifications Volt: 12 Test specifications in parentheses valve Shutoff Timing device characteristic: electromagnet Volt: 12 1/min: 2000 3rd speed Charge press. hPa: 800 1/min: 2000 2nd speed hPa: 800 Supply-pump Charge press bar: 8.30...8.90 mm: 6.10...6.90 TD travel pressure mm: (5.80...7.20) KSB/AFB Volt: 12 valve KSB/AFB Volt: 12 Shutoff valve Shutoff electromagnet Volt: 12 electromagnet Volt: 12 3rd speed 1/min: 1500 Overlow quantity at overflow valve: hPa: 800 Charge press 1/min: 500 mm: 4.00...4.40 1st speed TD travel Charge press. hPa: -KSB/AFB mm: (3.60...4.80) KSB/AFB Volt: 12 Volt: 12 valve valve Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 : 62.55...104.25 1/min: 1000 Overflow 4th speed cm3/10s: (47.55...119.25) 1/min: 2250 quantity Charge press hPa: 800 2nd speed TD travel mm: 1.90...2.70 Charge press. hPa: 800 mm: (1.60...3.00) KSB/AFB KSB/AFB Volt: 12 Volt: 12 valve valve Shutoff Shutoff electromagnet Volt: 12 8th speed 1/min: 800 electromagnet Volt: 12 : 69.50...152.90 Overflow Charge press. hPa: 800 cm3/10s: (54.50...167.90) quantity mm: 1,50...3.50 mm: (1.30...3.70) TD travel Delivery-quant. and breakaway char.: KSB/AFB Volt: valve 1/min: 1000 1nd speed Shutoff Charge-air pressure-setting electromagnet Volt: 12 1/min: 500 point hPa: 300 9th speed Charge press. hPa: 800 TD travel mm: 2.10...2.30 mm: (1.40...3.00) mm: 6,5 LDA-stroke KSB/AFB Volt: 12 valve Shutoff KSB/AFB electromagnet Volt: 12 Del. quantity cm3/: 58.50...59.50 1000s.: (55.50...62.50) Volt: valve Shutoff electromagnet Volt: 12

7.1	1
3rd speed 1/min: 2625	1/200 // //
Charge press. hPa: 800	+ 1st speed 1/min: 400
KSB/AFB	+ Del. quantity cm3/: 0.003.00
valve Volt: 12	1000s.: (0.003.00)
Shutoff	+ Shutoff
electromagnet Volt: 12	<pre>+ electromagnet volt: -</pre>
Del. quantity cm3/: 0.0010.00	∔ KSB/AFB
10005.: (0.0010.00)	+ valve Volt: 12
5th speed 1/min: 2525	
	Idle delivery:
Charge press. hPa: 800	T lote delivery.
KSB/AFB	I 1st speed 1/min: 400
valve Volt: 12	[
Shutoff	+ KSB/AFB
electromagnet Volt: 12	† valve Volt: 12
Del. quantity cm3/: 23.5025.50	+ Shutoff
10008.: (20.5028.50)	+ electromagnet Volt: 12
9th speed 1/min: 2250	+ Del. quantity cm3/: 9.0011.00
Charge press. hPa: 800	1000S.: (6.0014.00)
KSB/AFB	+ Dispersion cm3/: 3.0
	1000S.: (4.0)
Shutoff	
electromagnet Volt: 12	+ KSB/AFB
Del. quantity cm3/: 70.0074.00	tyalve Volt: 12
1000s.: (69.0075.00)	† Shutoff
12th speed 1/min: 1250	+ electromagnet Volt: 12
Charge press. hPa: 800	+ Del. quantity cm3/: 0.005.00
KSB/AFE	100cs.: (0.005.00)
valve Volt: 12	
Shutoff	Automatic starting fuel delivery:
	Automatic Starting fact actively.
electromagnet Volt: 12	T
Del. quyntity cm3/: 66.5067.50	1 2 4 4 4 1 750
10005.: (64.5069.50)	+ 2nd speed 1/min: 350
15th speed 1/min: 1000	+ KSB/AFB
Charge press. hPa: 800	† valve Volt: 12
KSB/AFB	+ Shutoff
valve Volt: 12	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 20.0040.00
electromagnet Volt: 12	1000s.: (20.0040.00)
Del. quantity cm3/: 69.5072.50	133301. 123103111
70000 . 747 50 77 50	4th speed 1/min: 100
1000s.: (67.5074.50)	
18th speed 1/min: 625	+ KSB/AFB
Charge press. hPa: -	† valve Volt: 12
KSB/AFB	+ Shutoff
valve Volt: 12	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 70.00100.00
electromagnet Volt: 12	1000s.: (70.00100.00)
Del. quantity cm3/: 29.5030.50	
10005.: (27.0033.00)	+ Shutoff electromagnet:
20th speed 1/min: 500	1 State of Cool Stagnes
	Cut-in
Charge press. hPa: -	
KSB/AFB	† min voltage : 10.0
valve Volt: 12	+ Rated voltage : 12.0
Shutoff	†
electromagnet Volt: 12	- Mounting and assembly dimensions:
Del. quantity cm3/: 27.5032.50	+
1000s.: (26.0034.00)	1 Designation
	+ K mm: 3.23.3
Mech. shutoff:	+ KF mm: K-OT
INDUITE DESCRIPTION	+ MS mm: 0.61.0
Electr. shutoff:	+ SVS max. mm: -
Litti Silutoffa	1 CAC HENY!

LDA stroke XK XL

nm: 6.5 nm: 20.0...22.0 nm: 10.7...14.1

Remarks:

Overflow restriction 0.75 mm - Part No. ..343,..344

Note inst. in remarks column

Test scheet : 09.04.92 Edition

replaces

: ISO-4113 Calibrating oil

: VE4/11F2100R415-1 Injection pump : 0 460 414 085 Type number

Customer Part-No. :

Customer-specific information

Customer

Engine

: 2.5L DI MY 92

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil return temp.

with thermometer: 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

essembly

: 1 683 901 114

Openina

bar: 207.00...210.00 Pressure

Perforated-plate

diameter

mm: 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block Piston stroke mm: 0.35

mm: 0.30...0.40

Outlet |

Injection-pump setting values Test specifications in parentheses

Timina-device travel

Speed 1/min: 1250

Setting value mm: 4.20...4.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 6.20...6.80

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/

1000s.: 25.80...26.20 F

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425

Del. quantity cm3/

1000s.: 8.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (4.0)

Full-load speed regulation

Speed 1/min: 2200

Del. quantity cm3/

1000s.: 23.20...25.20

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 50.00...90.00

mind 100Cs.: 50.00

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed

1/min: 2000 mm: 7.50...8.30 TD travel

mm: (7.20...8.60)

electromagnet Volt: 12

1/min: 1250 2nd speed

mm: 4.20...4.60 TD travel

mm: (3.90...4.90)

Shutoff Shutoff electromagnet Volt: 12
3rd speed 1/min: 800
TD travel mm: 2.00...2.80
mm: (1.70...3.10) electromagnet Volt: 12
Del. quantity cm3/: 23.20...25.20
1000S.: (19.20...29.20)
4th speed 1/min: 2100 4th speed Shutoff Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: 5th speed Shutoff 1/min: 500 1st speed electromagnet Valt: 12
Del. quantity cm3/: 36.50...38.90
1000S.: (35.20...40.30)
6th speed 1/min: 1000 Supply-pump bar: 4.40...5.00 pressure Shutoff electromagnet Volt: 12 2nd speed 1/min: 1000 6th speed Shutoff 2nd speed electromagnet Volt: 12 Del. quantity cm3/: 32.2...33.2 E 10005.: (30.2...35.2) E Supply-pump bar: 5.70...6.30 pressure Shutoff 1/min: 500 electromagnet Volt: 12 3rd speed 1/min: 1250 7th speed Shutoff 3rd speed electromagnet Volt: 12 Del. quantity cm3/: 24.00...28.0 F 1000s.: (23.20...29.0) F Supply-pump bar: 6.20...5.80 pressure Shutoff electromagnet Volt: 12 4th speed 1/min: 2008 Mech. shutoff: 4th speed Supply-pump Electr. shutoff: bar: 7.20...8.40 pressure Shutoff 1/min: 425 1st speed electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Overlow quantity at overflow valve: Shutoff 1/min: 500 electromagnet volt: -1st speed Shutoff Idle delivery: electromagnet Volt: 12 Overflow : 97.00...141.00 cm3/10s: (82.00...156.00) 1/min: 1950 1st speed 1/min: 425 quantity Shutoff 2nd speed electromagnet Volt: 12
Del. quantity cm3/: 8.00...9.00
1000s.: (5.00...13.00)
Dispersion cm3/: 3.0
1000s.: (4.0)
2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 : 115.00...184.00 Overflow quantity cm3/10s: (100.00...199.00) 2nd speed Delivery quant. and breakaway char.: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.00...10.00 1900S.: (0.00...12.00) 1/min: 1950 mm: 7.7 1nd speed HBA-stroke Shutoff Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Shutoff Spacing mm: 20.0 1/min: 1250 1st speed Shutoff electromagnet Volt: 12

Del. quantity cm3/: 18.00...19.00 1000s.: (16.00...21.00) Automatic starting fuel delivery: 1/min: 300 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...70.00 1000s.: -1/min: 480 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 21.00...31.00 1000s.: -1/min: 100 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...85.00 1000s.: -Shutoff electromagnet: Cut-in : 10.0 min voltage : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: 2.7...2.9 K KF ma: KOT mrn: 1.8 MS HBA stroke mm: 7.7 XK mm: mm: -ΧL Remarks: Overflow restriction 0.75 mm - Part No. ..343,..344 Pump/engine assignment: Attach timing-device cover KDEP 1151. Plunger lift in blocking position = 0.30... 0.40 mm referenced to outlet "A".

Note inst. in remarks column

: FOR Test scheet : 10.04.92 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/11F2000R415-2 : 0 460 414 089 Type number

Customer Part-No. :

Customer-specific information

Customer

: 2.51 DI MY 92 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 114 assembly

Openina

bar: 207.00...210.00 Pressure

Perforated-plate

mm: 0.4 diameter

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block mm: 0.35 Piston stroke

mm: 0.30...0.40

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed

Setting value mm: 3.80...4.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 6.90...7.50

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/ 1000s.: 25,8...26.2 F

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 425

Del. quantity cm3/ 1000s.: 6.00...8.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (4.0)

Fuil-load speed regulation

1/min: 2200 Speed

Del. quantity cm3/ 1000s.: 23.50...25.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.01000s.: (4.0)

Start:

Speed 1/min: 100 Del. quantity cm3/: 40.00...80.00

1000s.: 40.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 2000 2nd speed

mm: 7.00...7.80 TD travel

mm: (6.70...8.10)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 1250

	3.804.20 (3.504.50)	‡	5th speed 1/min: 2200 Shutoff
Shutoff electromagnet Volt:	12	+	electromagnet Volt: 12 Del. quantity cm3/: 23.5025.50 1000s.: (19.5029.50)
	1.302.10 (1.002.40)	Ī	8th speed 1/min: 2100 Shutoff
Shutoff electromagnet Volt:	12	+	electromagnet Volt: 12 Del. quantity cm3/: 31.0037.00 1000s.: (28.0040.00)
Supply-pump pressure	e characteristic:	Ī	10th speed 1/min: 1700 Shutoff
1st speed 1/min: Supply-pump		+	electromagnet Volt: 12 Del. quantity cm3/: 37.0039.40 10008.: (35.7040.70)
pressure bar: Shutoff electromagnet Volt:	5.205.80	<u> </u>	12th speed 1/min: 500 Shutoff
2nd speed 1/min: Supply-pump	1000	+	electromagnet Volt: 12 Del. quyntity cm3/: 25.8026.20
pressure bar: Shutoff electromagnet Volt:	6.407.00	‡	1000S:: (23.0029.00) 18th speed 1/min: 1000 Shutoff
3rd speed 1/min: Supply-pump	1250 6.907.50	+	electromagnet Volt: 12 Del. quantity cm3/: 32.033.0 E 1000S.: (30.035.0)
Shutoff electromagnet Volt:	12	+	Mech. shutoff:
4th speed 1/min: Supply-pump pressure bar:	2000 8.609.20	†	Electr. shutoff:
Shutoff electromagnet Volt:		++	1st speed
Overlow quantity at	overflow valve:	+	1000s.: - Shutoff electromagnet volt: -
1st speed 1/min: Shutoff		+	Idle delivery:
quantity cm3/10s:	97.30141.70 (82.30156.70)	Ī	1st speed 1/min: 425 Shutoff
2nd speed 1/min: Shutoff electromagnet Volt:		†	electromagnet Volt: 12 Del. quantity cm3/: 6.008.00 1000s.: (3.0011.00)
Overflow :	115.30184.80 (100.30199.80)	+	Dispersion cm3/: 3.0 1000s.: (4.0)
Delivery-quant. and	ł breakaway char.:	‡	2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.008.00
	1950 7.7	+	1000s.: -
	: 36.538.9 D : (35.240.2) D	† † † † † †	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scard(ADE)
2nd speed 1/min: Shutoff electromagnet Volt:		‡	gaz d'échappement-ARF) 1st speed 1/min: 1250
Del. quantity cm3/: 1000s.	: 0.005.00	‡	Shutoff electromagnet Volt: 12

Del. quantity cm3/: 22.50...23.50 1000s.: (20.50...25.50) Automatic starting fuel delivery: 1/min: 300 1st speed Shutoff electromagnet Volt: 12
Del. quantity cm3/: 40.00...70.00
1000s.: -1/min: 480 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 21.00...31.00 1000s.: -1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...80.00 1000s.: (40.00...80.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: 2.7...2.9 K KF mm: K-OT mm: 1.8 mm: 7.7 MS HBA stroke Remarks: Pump/engine assignment: Attach timing-device cover KDEP 1151. Plunger lift in blocking position = 0.30... 0.40 mm referenced to outlet "A". Overflow restriction 0.75 mm - Part No. ...343,...344

Note inst. in remarks column

Test scheet

: 13.04.92 Edition

replaces

Calibrating oil : ISO-4113

: VE6/11F1500R196 Injection pump : 0 460 416 042 Type number

Customer Part-No.:

Customer-specific information : IVECO-FLAT Customer

: 8060.05.200 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temo.

with thermometer : 40.00...48.00 Electronically: 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening |

bar: 172.00...175.00 Pressure

Perforated-plate

mm: 0.6 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840

x Length

Start of delivery

Indicator setting

Piston stroke mm: 1.0

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000

Setting value mm: 3.20...3.60

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000 Speed

Setting value bar: 5.40...6.00

Shutoff

electromagnet Volt: 24

Full-load del. w/out charge press.:

1/min: 1300 Speed

Del. quantity cm3/

1000s.: 69.50...70.50

Shutoff

electromagnet Volt: 24 cm3/: (3.5)Dispersion

1000S.: (4.0)

Low-idle speed regulation

1/min: 325 Speed

Del. quantity cm3/

1000s.: 8.00...12.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 3.0 1000S.: (4.0)

Full-load speed regulation

1/min: 1650

Del. quantity cm3/

1000s.: 41.00...47.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 76.00...126.00

1000s.: 76.00 mind

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1400 1st speed

mm: 6.20...7.00 TD travel

mm: (5.90...7.30)

electromagnet Volt: 24 3rd speed 1/min: 1000 TD travel mm: 3.20...3.60 mm: (2.70...4.10)

Shutoff

electromagnet Volt: 24

G03

Shutoff 4th speed 1/min: 700 mm: 0.50...1.30 mm: (0.20...1.60) electromagnet Volt: 24 12th speed 1/min: 1300 TD travel Shutoff Shutoff electromagnet Volt: 24 Supply-pump pressure characteristic: 1/min: 700 Shutoff 1st speed electromagnet Volt: 24
Del. quantity cm3/: 64.50...67.50
1000s.: (62.50...69.50)
20th speed 1/min: 600 Supply-pump bar: 4.20...4.80 pressure Shutoff electromagnet Volt: 24 2nd speed 1/min: 1000 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 56.00...60.00 1000s.: (54.50...61.50) Supply-pump bar: 5.40...6.00 pressure Shutoff electromagnet Volt: 24 3rd speed 1/min: 1500 3rd speed Mech. shutoff: Mech. Abstellung: Supply-pump bar: 7.40...8.00 pressure Shutoff electromagnet Volt: 24 Shutoff Overlow quantity at overflow valve: electromagnet volt: 24 1/min: 600 1st speed Electr. shutoff: Shutoff electromagnet Volt: 24 : 41.70...83.40 cm3/10s: (26.70...98.40) 1/min: 1500 quantity 1000s.: (0.00...3.00) 2nd speed Shutoff electromagnet volt: electromagnet Volt: 24 : 55.60...139.00 Overflow quantity cm3/10s: (40.60...153.00) Idle delivery: 1/min: 325 1st speed Delivery-quant. and breakaway char.: Shutoff electromagnet Volt: 24
Del. quantity cm3/: 8.00...12.00
1000S.: (6.00...14.00)
Dispersion cm3/: 3.0 1/min: 1750 2nd speed Shutoff electromagnet Volt: 24
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00)
5th speed 1/min: 1650 1000s.: (4.0) 1/min: 450 2nd speed Shutoff electromagnet Volt: 24
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00) Shutoff electromagnet Volt: 24
Del. quantity cm3/: 41.00...47.00
1000s.: (38.00...50.00)
8th speed 1/min: 1600 Automatic starting fuel delivery: Shutoff electromagnet Volt: 24
Del. quantity cm3/: 54.00...66.00
1000s.: (52.00...68.00)
9th speed 1/min: 1500 1/min: 200 1st speed Shutoff electromagnet Volt: 24
Del. quantity cm3/: 80.00...130.00 1000s.: (80.00...130.00) Shutoff electromagnet Volt: 24
Del. quantity cm3/: 67.50...70.50
1000s.: (65.50...72.50) 1/min: 320 2nd speed

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 24.00...44.00 1000s.: (24.00...44.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 76.00...126.00
1000s.: (76.00...126.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 mm: 5.6...6.0 mm: 1.9...2.1 KF IIS

Remarks:

Note inst. in remarks column

: PER 4.0 F Test scheet : 14.04.92 Edition : 23.07.91 replaces : ISO-4113 Calibrating oil

: VE4/12F1300R346 Injection pump Type number : 0 460 424 052

Customer Part-No. :

Customer-specific information Customer : PERKINS

: T4.40 110T Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically: 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Coening

bar: 172.00...175.00 Pressure

Perforated plate

mm: 0.6 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mn: -(from BDC): -

Start of delivery block mm: 1,0 Piston stroke

mm: +0.02(0.06)

: C Outlet

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1000 Charge press. hPa: 1000

Setting value mm: 1.80...2.20

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000 Charge press hPa: 1000

Setting value bar: 5.90...6.50

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 1000 Speed Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 92.00...93.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.0)

Full-load del. w/out charge press.:

1/min: 700 Speed

Del. quantity cm3/ 1000s.: 78.50...79.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 15.50...19.50

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1440 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 67.00...73.00

electromagnet Volt: 24

Start:

Speed 1/min: 100 Del. quantity cm3/: 110.00...150.00

1000s.: 110.0 mind

Shutoff

electromagnet Volt: 24

Inspection pump test Test specifications		‡	Shutoff electromagnet Volt:	24
vest spectifications	μα. σ.,σ.,σσσσ	1	Overflow :	55.60139.00
Timing-device charac	teristic:	1	quantity cm3/10s:	(40.60153.00)
2nd speed 1/min:	1100	1	Delivery-quant. and	breakaway char.:
Charge press hPa:		+	destroit, quarres are	
TD travel mm:	2.102.90	4		
mn:	(1.803.20)	+	1nd speed 1/min:	700
Shutoff		+	Charge-air pressure	-setting
electromagnet Volt:	24	+	point hPa:	400
3rd speed 1/min:	1000	+	LDA-stroke mm:	7.0
Charge press hPa:	1000	+	Shutoff	
TD travel mm:	1.802.20	+	electromagnet Volt:	24
	(1.302.70)	+	Del. quantity cm3/:	84.5085.50
Shutoff		+		(82.0088.00)
electromagnet Volt:	24	+	2nd speed 1/min:	1500
4th speed 1/min:	850	+	Charge press. hPa:	1000
Charge press hPa:	1000	+	Shutofi	
TD travel mm:	0.201.00	+	electromagnet Volt:	24
mn:	(0.001.20)	+	Del. quantity cm3/	20.0028.00
Shutoff		+	1000s.:	(17.0031.00)
electromagnet Volt:	24	+	3rd speed 1/min:	1580
5th speed 1/min:	1300	+	Charge press. hPa:	
Charge press. hPa:	1000	1	Shutoff	
TD travel mm:	2.203.00	1	electromagnet Volt	: 24
mm:	(1.903.30)	+	Del. quantity cm3/	0.003.00
Shutoff		+	1000s.	; -
electromagnet Volt:	24	+	5th speed 1/min	: 1440
3		+	Charge press. hPa	: 1000
Supply-pump pressure	characteristic:	+	Shutoff	
		+	electromagnet Volt	24
1st speed 1/min:	1300	+	Del. quantity cm3/	67.0073.00
Charge press. hPa:	1000	+		(64.0076.00)
Supply-pump		+		: 1300
pressure bar:	7.007.60	+	Charge press. hPa	: 1000
Shutoff		+	Shutoff	•
electromagnet Volt:	24	+	electromagnet Volt	: 24
2nd speed 1/min:		+	Del. quantity cm3/	: 90.5093.50
Charge press. hPa:	1000	+	10005.	(88.5095.50)
Supply-pump		+	10th speed 1/min	: 700
	5.906.50	+	Charge press. hPa	1000
Shutoff		+	Shutoff	21
electromagnet Volt:	24	†	electromagnet Volt	. 07 00 04 00
3rd speed 1/min:	500	†	Del. quantity cm3/	. 73.0070.00
Supply-pump	7.00	†		: (91.0098.00)
1	3.804.40	†	12th speed 1/min	
Shutoff	21	†	Charge press. hPa	: 1000
electromagnet Volt:	24	†	Shutoff	• 2/.
6		†	electromagnet Volt	; 24 • 02 00 03 00
Overlow quantity at	overtiom valve:	†	Del. quyntity cm3/	: (89.5095.50)
A - A	500	†	18th speed 1/min	. (07.JU7J.JU/ - 700
1st speed 1/min:		Ť	18th speed 1/min	. (UQ •
Charge press. hPa:	-	Ţ	Charge press. hPa Shutoff	•
Shutoff	2/.	I	electromagnet Volt	• 24
electromagnet Volt:	41.7083.40	I	Del. quantity cm3/	78 50 79 50
Overflow : quantity cm3/10s:		I	2000. Quarterty time?	: (76.0082.00)
2nd speed 1/min:	1300	I	1000.	. (10,00,1,00,00)
Charge press. hPa:		I	Mech. shutoff:	
The second of the second secon	I Lake Bud			

Mech. Abstellung:

1/min: 1300 1st speed

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: 24

Electr. shutoff:

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1/min: 300 1st speed

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 15.50...19.50 1000S.: (12.50...22.50)

cm3/: 5.0Dispersion

1000s.: (5.0)

1/min: 350 2nd speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 4.50...10.50 1000s.: (2.50...12.50)

1/min: 400 4th speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 0.00...3.00

1000s.: -

Automatic starting fuel delivery:

1/min: 150 1st speed

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 120.00...160.00 1000s.: (115.00...165.00)

1/min: 250 2nd speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 65.00...75.00 1000S.: (65.00...75.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 110.00...150.00

1000s.: (110.00...150.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0

G08

: 24.0 Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3,2...3,4 K KF mm: K-OT mm: 0,6...1,0 MS SVS max.

mm: 1.8 mm: 20.0...22.0 XK

mm: 13,8...17,2 XL

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Note inst. in remarks column

: CUM 3,9 P43 Test scheet : 14.04.92 Edition : 15.07.91 replaces : ISO-4113 Calibrating oil

: VE4/12F1100R378-7 Injection pump : 0 460 424 074 Type number

Customer Part-No. :

Customer-specific information Customer : CASE

: 4 BT-390 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

bar: 250.00...253.00 Pressure

Perforated plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Lenath

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.04)

Start of delivery block mm: 2,35 Piston stroke

mm: +0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 900 Speed

Setting value mm: 2.30...2.70

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 900 Speed

Setting value bar: 4.10...4.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 750

Del. quantity cm3/ 1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion 1000s.: (4.5)

Low-idle speed regulation

1/min: 500 Speed

Del. quantity cm3/ 1000S.: 6.00...12.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1170 Speed

Del. quantity cm3/

1000s.: 31.50...38.50

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...120.00 mind 1000s.: 70.00

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1100 2nd speed

mm: 3.10...3.90 TD travel mm: (2.80...4.20)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 900

G09

mm: 2.30...2.70 Shutoff TD travel electromagnet Volt: 12 Del. quantity cm3/: 60.50...63.50 1000S.: (59.00...65.00) mm: (1.80...3.20) Shutoff electromagnet Volt: 12 4th speed 1/min: 650 1/min: 900 10th speed Shutoff mm: 0.70...1.50 TD travel mm: (0.40...1.80)Shutoff electromagnet Volt: 12 Shutoff Supply-pump pressure characteristic: 1/min: 500 1st speed Supply-pump bar: 2.40...3.00 20th speed pressure Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 61.00...69.00 1000s.: (59.00...71.00) 2nd speed 1/min: 900 Supply-pump bar: 4.10...4.70 pressure Mech. shutoff: Shutoff electromagnet Volt: 12 3rd speed 1/min: 1100 Mech. Abstellung: Supply-pump bar: 4.90...5.50 pressure 1000s.: (0.00...3.00) Shutoff Shutoff electromagnet Volt: 12 electromagnet volt: 12 Overlow quantity at overflow valve: Electr. shutoff: 1st speed 1/min: 500 1/min: 500 Shutoff 1st speed Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 12 1000s.: (0.00...3.00) : 41.70...83.40 Overflow cm3/10s: (26.70...98.40) Shutoff quantity 2nd speed 1/min: 1100 electromagnet volt: -Shutoff electromagnet Volt: 12 Overflow : 55.60...139.00 Idle delivery: 1/min: 500 cm3/10s: (40.60...154.00) 1st speed quantity Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.00...12.00 1000S.: (4.00...14.00) Delivery-quant. and breakaway char.: cm3/: 5.5 1/min: 1260 Dispersion 2nd speed 1000s.: (7.0) Shutoff 1/min: 570 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) 3rd speed Shutoff Automatic starting fuel delivery: 1/min: 130 1st speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00) 2nd speed 1/min: 240 Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 30.00...70.00 1000s.: (30.00...70.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 70.00...120.00 1000S.: (70.00...120.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0 min voltage

Mounting and assembly dimensions:

Designation

K KF

mm: -mm: K-OT mm: 1,2...1,6 mm: 3,2 MS

SVS max.

Remarks:

: C.D.C. # 391 7528

G11

Note inst. in remarks column

Test scheet : FIA : 14.04.92 Edition : 15.07.91 replaces : ISO-4113 Calibrating oil

: VE4/12F1350R407 Injection pump Type number : 0 460 424 075

Customer Part-No. :

Customer-specific information Customer : IVECO-FIAT

: 8040.25,4000 TC Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically: 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

bar: 250.00...253.00 Pressure

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start owdelivery Prestroke mm: -(from BDC): -

Injectich pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed 3 Charge press. hPa: 1000 Setting value mm: 1.40...1.80

Shutoff electromagnet Volt: 24

Supply-pump pressure

1/min: 1000 Speed Charge press hPa: 1000 Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 79.00...80.00

Shutoff electromagnet Volt: 24 Dispersion cm3/: 3.5

1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/ 1000s.: 64.00...65.00

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 350

Del. quantity cm3/ 1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 3.5 1000s.: (5.0)

Full-load speed regulation

1/min: 1525 Speed hPa: 1000 Charge press

Del. quantity cm3/ 1000s.: 30.00...36.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100

Del. quantity cm3/: 60.00...110.00

1000s.: 60.00 mind

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:		harge-air pressure-	
0 1 1 4/4 4400		oint hPa:	
2nd speed 1/min: 1100		DA-stroke mm:	0,1
Charge press hPa: 1000		hutoff	3 /
TD travel mm: 2.203.00	+ e	lectromagnet Volt:	24 no 45 no
mm: (1.703.5))) + De	el. quantity_cm3/:	64.0065.00
Shutoff	† .		(60.5068.50)
electromagnet Volt: 24	+ 2r	nd speed 1/min:	1600
3rd speed 1/min: 1000	+ C1	harge press. hPa:	1000
Charge press hPa: 1000	-} SI	hutoff	
TD travel mm: 1.401.80	e -	lectromagnet Volt:	24
mm: (0.702.5))) + De	el. quantity cm3/:	0.003.00
5th speed 1/min: 1350	 	1000s.:	(0.003.00)
Charge press. hPa: 1000	¹ 5 ⁻	th speed 1/min:	1525
TD travel mm: 3.704.50	+ ci	harge press. hPa:	
nm: (3.205.0	$\frac{1}{2}$	hutoff	
Shutoff		lectromagnet Volt:	24
electromagnet Volt: 24	1 D	el. quantity cm3/:	30.0036.00
ecceroling for voce. 24		10005	(27.0039.00)
Supply-pump pressure characteri	tic 1 8	th speed 1/min:	
supply-pump pressure that accert	1 c	harge press. hPa:	
1at amond 1/mins 600		hutoff	1000
1st speed 1/min: 600		lectromagnet Volt:	2/.
Charge press. hPa: 1000	T	riettromagnet vott.	/3 no 51 no
Supply-pump	T	el. quantity cm3/:	(// 00 57 00)
pressure bar: 3.704.30	† ^		(41.0053.00)
Shutoff	† 2	th speed 1/min:	
electromagnet Volt: 24	+ 0	harge press. hPa:	1000
2nd speed 1/min: 1000		hutoff	0 4
Charge press. hPa: 1000	+ e	electromagnet Volt:	24
Supply-pump		el. quantity cm3/:	69.50/2.50
pressure bar: 5.706.30			(67.5074.50)
Shutoff		Oth speed 1/min:	
electromagnet Volt: 24	+ c	harge press. hPa:	1000
3rd speed 1/min: 1350	∔ s	Shutoff	
Charge press. hPa: 1000	∔ e	electromagnet Volt:	24
Supply-pump	+ D	el. quantity cm3/:	72.0076.00
pressure bar: 7.508.10	+	1000S.:	(70.5077.50)
Shutoff	↓ 1	2th speed 1/min:	700
electromagnet Volt: 24		Charge press. hPa:	1000
cecettomagnet voets En	<u> </u>	Shutoff	
Overlow quantity at overflow va		electromagnet Volt:	24
over tow quarterly at over row vo	1 0	Del. quyntity cm3/:	79.0080.00
1st speed 1/min: 600	1	10008	(76.0083.00)
Charge press. hPa: 1000	1 1	8th speed 1/min:	
Shutoff		Charge press. hPa:	
	I	Shutoff	
electromagnet Volt: 24		electromagnet Volt:	2/.
Overflow : 41.7083.	T	Del. quantity cm3/:	75 50 77 50
quantity cm3/10s: (26.7098	·40) T	et, quantity (115/:	(42.5049.50)
2nd speed 1/min: 1350	Τ ,	10003	(4 <u>6</u> ,50,47,50/
Charge press. hPa: 1000	† 5	20th speed 1/min:	4000
Shutoff	† ½	Charge press. hPa:	1000
electromagnet Volt: 24		Shutoff	. 2/
Overflow : 55.60139		electromagnet Volt:	24
quantity cm3/10s: (40.6015	4.UU) † C	Del. quantity cm3/:	82.5086.50
	. + .		(81.0088.00)
Delivery-quant. and breakaway (har.: + a	21th speed 1/min:	500
• •	+ (Charge press. hPa:	; -
	+ 5	Shutoff	
1nd speed 1/min: 600*	+ 6	electromagnet Volt:	: 24
	+		
	*		

Del. quantity cm3/: 44.00...48.00 1000s.: (42.00...50.00) Mech. shutoff: Mech. Abstallung: Shutoff electromagnet volt: 24 Electr. shutoff: 1/min: 350 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: -Shutoff electromagnet volt: -

Idle delivery:

1st speed 1/min: 350 Shutoff electromagnet Volt: 24

Del. quantity cm3/: 13.00...17.00 1000s.: (10.00...20.00)

cm3/: 3.5 Dispersion 1000s.: (5.0) 1/min: 475 2nd speed Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1/min: 130 1st speed Shutoff electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00

1000s.: (60.00...110.00)

1/min: 250 2nd speed Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 45.00...65.00 1000s.: (45.00...65.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00 1000s.: (60.00...110.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0

: 24.0 Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3,7 mm: K-OT KF mm: 0,7...1,1 MS mm: 6,7 LDA stroke

Operate control lever after each manifold pressure compensator pressure change.

* Correction at adjusting nut (46)

G14

Note inst. in remarks column

: CDC 3,9 P60 Test scheet : 14.04.92 Edition : 15.01.92 replaces

: ISO-4113 Calibrating oil

: VE4/12F1250R424 Injection pump : 0 460 424 079 Type number

Customer Part-No. :

Customer-specific information

Customer

: 4 BTAA 3.9 Engine

KW: 79 Power 1/min: 2500 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 109 assembly

Opening

bar: 207.00...210.00 Pressure

Perforated plate

diameter mm: 0.5

Test ini. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block mm: 1.2 Piston stroke

mm: 0.02(0.06)

Out Let : A

Injection pump setting values

Test specifications in parentheses

Timing-device travel

Speed 1/min: 850 Charge press. hPa: 1000 Setting value mm: 1.00...1.40

AFB/AFB

valve Volt: -

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed hPa: 1000 Charge press

Setting value bar: 6.90...7.50

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 850 Speed Charge press. hPa: 1000 Del. quantity cm3/

1000s.: 85.50...86.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 53.50...54.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (6.0)

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/ 1000s.: 14.50...18.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1335 Charge press hPa: 1000

Del. quantity cm3/ 1000s.: 74.00...80.00

Shutoff

electromagnet Volt: 12

G15

Start:		+		ft.
Speed 1/min:	100	1	Overlow quantity at	overtiow valve:
Del. quantity cm3/:	115.00165.00	I	1st speed 1/min:	500
mind 1000s.:	115.0	+	Shutoff	
Shutoff	10	+	electromagnet Volt:	12
electromagnet Volt:	12	+	Overflow : quantity cm3/10s:	41.7083.40 726.70 98.70)
Inspection-pump test	enecifications	Ī	2nd speed 1/min:	1250
Test specifications	in parentheses	1	Charge press. hPa:	1000
rest specifications	ni par cheneses	+	Shutoff	
Timing device charac	teristic:	+	electromagnet Volt:	12
	1050	+	Overflow :	55.60139.00
2nd speed 1/min:	125U 1000	+	quantity cm3/10s:	(40.00154.00.
Charge press hPa: TD travel mm:	2 10: 2 00:	I	Delivery-quant. and	hreakauay char
in travet im.	(1.803.20)	Ţ	betively quality and	Di Cultuma) Cilai i
Shutoff	(11005.20)	1		
electromagnet Volt:	12	+	1nd speed 1/min:	700*
3rd speed 1/min:	850	+	Charge-air pressure	-setting
Charge press hPa:	1000	+	point hPa:	300
TD travel mm:	1.001.40	Ť	Shutoff	12
	(0.501.90)	†	electromagnet Volt: Del. quantity cm3/:	12 40 00 70 00
Shutoff electromagnet Volt:	12	1	Pet. quantity clib.	(65.5073.50)
8th speed 1/min:	450	1	2nd speed 1/min:	1500
Charge press. hPa:		+	Charge press. hPa:	
TD travel mm:	2.003.00	+	Shutoff	
mn:	(1.803.20)	+	electromagnet Volt:	12
KSB/AFB		+	Del. quantity cm3/:	0.003.00
valve Volt:	12	†	10005.:	1//0
Shutoff	12	†	3rd speed 1/min: Charge press. hPa:	1440 1000
electromagnet Volt:	12	1	Shutoff	1000
Supply-pump pressure	e characteristic:	1	electromagnet Volt:	12
capery parts pressure		+	Del. quantity cm3/:	15.0045.00
1st speed 1/min:		+	10005.:	
Charge press. hPa:	1003	+	5th speed 1/min:	1325
Supply-pump	5 50 / 40	+	Charge press. hPa:	1000
	5.506.10	†	Shutoff electromagnet Volt:	12
Shutoff electromagnet Volt:	12	I	Del. quantity cm3/:	72.0078.00
2nd speed 1/min:	1100	1	1000S.:	(72.0078.00)
Charge press. hPa:	1000	+	9th speed 1/min:	
Supply-pump		+	Charge press. hPa:	1000
,	6.907.50	+	Shutoff	40
Shutoff	40	+	electromagnet Volt:	12 64 nm 04 nm
electromagnet Volt:	1250	+	Del. quantity cm3/:	(79.5087.50)
3rd speed 1/min: Charge press. hPa:		I	10th speed 1/min:	1100
Charge press. hPa: Supply-pump	1000	I	Charge press. hPa:	
pressure bar:	7.508.10	1	Shutoff	, , , , , , , , , , , , , , , , , , , ,
Shutoff		+	electromagnet Volt:	12
electromagnet Volt:	12_	+	Del. quantity cm3/:	84.0089.00
4th speed 1/min:	500	+		(82.50,90.50)
	1000	+	12th speed 1/min:	
Supply-pump	/ nn / 4n	†	Charge press. hPa:	I IUUU
	4.004.60	I	Shutoff electromagnet Volt:	12
Shutoff electromagnet Volt:	12	I	etech Gragnet vott	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
acces anagnes voces	•	ī		

Del. quyntity cm3/: 85.50...86.50

1000s.: (83.00...89.00)

1/min: 500 18th speed Charge press. hPa: ~

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 53.50...54.50 1000s.: (50.00...58.00)

Mech. shutoff: Mech. Abstellung:

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: 12

Electr. shutoff:

1/min: 400 1st speed

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 400

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 14.50...18.50 1000s.: (11.50...21.50) Dispersion cm3/: 5.5

1000s.: (7.0)

1/min: 490 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...3.00

1000s.: -

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 140.00...190.00

1000s.: -

1/min: 240 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 40.00...70.00 1000s.: -

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 115.00...165.00

1000s.: -

Cut-in min voltage

Shutoff electromagnet:

: 10,0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.5...3.9 K KF mm: K-01 mm: 0.8...1.2 MS SVS max. mm: -

mm: 7.0 LDA stroke

Remarks:

: C.D.C. # 391 3443

Heavy-duty fuel-injection pump for DI-engines: only test using timingdevice-travel measuring device with

metal jacket

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

Note inst. in remarks column

Test scheet : CUM : 09.04.92 Edition replaces : 12.07.91 : ISO 4113 Calibrating oil

: VE4/12F1100R378-8 Injection pump : 0 460 424 081 Type number

Customer-specific information

Customer : CDC

: 4 BT Engine

KW: 67 Power 1/min: 2200 Speed

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40.0...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0,30...0,40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253,00 Pressure

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block mm: 1,8 Piston stroke

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 900 Speed

Setting value mm: 2,3...2,7

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 900 Speed

Setting value bar: 4,1...4,7

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 900

Del. quantity cm3/ 1000s.: 68.0...69.0

Shutoff

electromagnet Volt: 12 cm3/: 4,0 Dispersion

1000s.: (4,5)

Low-idle speed regulation

1/min: 475 Speed

Del. quantity cm3/ 1000s:: 10,5...16,5

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5,5 1000S.: (7,0)

Full-load speed regulation

1/min: 1175 Speed

Del. quantity cm3/ 1000s.: 32,5...37,5

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed Del. quantity cm3/: -mind 1000s.: 65,0

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 750 1st speed

mm: 1,3...2,1 mm: (1,0...2,4) TD travel

electromagnet Volt: 12

2nd speed 1/min: 900

TO travel mm:	2,32,7	+	Del. quantity cm3/: 65,568,5
nin :	(1,83,2)	+	1000s.: (64,070,0)
Shutoff		+	5th speed 1/min: 900
electromagnet Volt:	12	+	Shutoff
3rd speed 1/min:	1100	+	electromagnet Volt: 12
TD travel mm:	3,44,1	+	Del. quantity cm3/: 68,069,0
mm	(3,04,4)	1	1000s.: (65,571,5)
— 1		†	6th speed 1/min: 750
Supply-pump pressui	re characteristic:	†	Shutoff electromagnet Volt: 12
1st speed 1/min	500	I	Del. quantity cm3/: 70,074,0
•	. 500	Ι	1000s (68.0 76.0)
Supply-pump pressure bar	: 2,32,9	<u>Ţ</u> .	1000S:: (68,076,0) 7th speed 1/min: 500
Shutoff		1	Shutoff
electromagnet Volt	: 12	1	electromagnet Volt: 12
2nd speed 1/min	900	1	Det. quantity cm3/: 70,078,0
Supply-pump		+	1000s.: (68,080,0)
pressure bar	: 4,14,7		e ^r
Shutoff		+	Mech. shutoff:
electromagnet Volt	: 12	+	Mech. Abstellung:
3rd speed 1/min	: 1100	+	4.4
Supply-pump		+	1st speed 1/min: 1100
	: 4,95,5	†	Del quantity cm3/: 0,03,0 1000s.: -
Shutoff	. 12	Ť	Shutoff
electromagnet Volt	: 12	Ι	electromagnet volt: 12
Overlow quantity a	t overflow valve:	Ι	etetti ollagi et vott. 12
Over tow quarterty a	t over now vacve.	1	Electr. shutoff:
1st speed 1/min	: 500	1	
Shutoff	. 330	+	1st speed 1/min: 475
electromagnet Volt	: 12	+	Del. quantity cm3/: 0,03,0
Overflow	. 4183	+	Shutoff
quantity cm3/10s	: (2698)	+	electromagnet volt: -
2nd speed 1/min	: 1103	⊹	- 11 · 6 · 1 · 6
Shutoff		+	Idle delivery:
electromagnet Volt	: 12	+	1-t-mark 1/min. /75
Overflow	: 55138	1	1st speed 1/min: 475
quantity cm3/10s	: (40154)	Ī	Shutoff electromagnet Volt: 12
Delivery quant. an	d brooksway chan	I	Del. quantity cm3/: 10,516,5
betivery quart. an	a Dieanaway Chai	I	10005.: (8,518,5)
		1	2nd speed 1/min: 550
1nd speed 1/min	: 1230	+	Shutoff
Shutoff	· · · · · · ·	+	electromagnet Volt: 12
electromagnet Volt	: 12	+	Del. quantity cm3/: 0,03,0
Del. quantity cm3/	: 0,03,0	+	1000s.: -
1000s.	: -	+	A
	: 1175	†	Automatic starting fuel delivery:
Shutoff	. 12		1st speed 1/min: 130
electromagnet Volt	: 14 . 72 5 - 77 5	Ť	1st speed 1/min: 130 Shutoff
Del. quantity cm3/	: (30,040,0)	I	electromagnet Volt: 12
3rd speed 1/mir	: 1160	I	Del. quantity cm3/: 80,0120,0
Shutoff		1	10005.: -
electromagnet Volt	: 12	1	
Del. quantity cm3/		+	2nd speed 1/min: 240
1900s.	•	+	Shutoff
	ı: 1100	+	electromagnet Volt: 12
Shutoff	40	+	Del. quantity cm3/: 40,080,0
electromagnet Volt	:: 12	+	1000s.: -

Shutoff electromagnet:

Cut-in min voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

mm: -mm: 5,0...5,4 mm: 1,1...1,5 mm: 3,2 K KF MS SVS max.

Remarks:

Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

: MAX Test scheet : 14.04.92 Edition : 10.10.91 replaces : ISO 4113 Calibrating oil

: VE4/12F1400R454 Injection pump : 0 460 424 082 Type number

Customer Part-No. :

Customer-specific information Customer : MAXON

: \$4 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm: 450 x Length

Start of delivery

mm: 0.3 Prestroke

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed Setting value mm: 2.3...2.7

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1000 Speed

Setting value bar: 5.0...5.6

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1000 Speed

Del. quantity cm3/ 1000s.: 83.0...84.0

Shutoff

electromagnet Volt: 12 cm3/: 4.0Dispersion 1000s.: (4.5)

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/ 1000s.: 28.0...32.0

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (5.0)

Full-load speed regulation

1/min: 1480 Speed

Del. quantity cm3/ 1000s.: 57.0...63.0

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 80.0...120.0

1000s.: 80.0 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 800 1st speed

mm: 0.5...1.3 TD travel

mm: (0.2...1.6)

electromagnet Volt: 12
2nd speed 1/min: 1000
TD travel mm: 2.3...2.7
mm: (1.8...3.2)

Shutoff

electromagnet Volt: 12 1/min: 1350 3rd speed

mm: 3.8...4.6 TD travel mm: (3.5...4.9)

Supply-pump pressure characteristic:

	1/min:	800	-	4	
Supply-pump	_	<u></u>	t	1st speed 1/min: 350	7.0
pressure	bar:	4.14.7	-	Del. quantity cm3/: 0.0.	3.0
Shutoff		40	†	1000s.: -	
electromagnet	VOLT:	12 1	T	Shutoff	
2nd speed	1/11717:	1000	T	electromagnet volt: -	
Supply-pump	hane	5.05.6	Ι	Idle delivery:	
pressure Shutoff	r.agr.;	5.0,5.0	Ι	Tute herivery.	
electromagnet	Valt.	12		1st speed 1/min: 350	
3rd speed	1/min:	1350	1	Shutoff	
Supply-pump			1	electromagnet Volt: 12	
pressure	bar:	6.57.1	}	Del. quantity cm3/: 28.0	032.0
Shutoff		•		1000s.: (26.	034.0
electromagnet	Volt:	12 -	†	2nd speed 1/min: 400	
	•	-	†	Shutoff	
Overlow quant	ity at	overflow valve:	†	electromagnet Volt: 12	14 D
4 - 4	4 /	rm ·	†	Del. quantity cm3/: 8.0. 1909S.: (6.0	IQ.U
	1/min:	500	Ï	3rd speed 1/min: 450	10.137
Shutoff electromagnet	1014.	12	Ι	Shutoff 17mm, 450	
Overflow	voct.	4183	Ţ	electromagnet Volt: 12	
		(2698)	1	Del. quantity cm3/: 0.0.	6.0
2nd speed	1/min:	1350	1	1000s.: -	
Shutoff		•	+		
electromagnet	Volt:	12	+	Automatic starting fuel	delivery:
Overflow	<u> : </u>	55138	†	4	
quantity cm	3/10s:	(40153)	†	1st speed 1/min: 100	
*	,	Character a character	†	Shutoff	
betivery-quar	rc. and	breakaway char.:	Ť	electromagnet Volt: 12 Del. quantity_cm3/: 80.0	120 0
			I	1000S.: -	7120.0
1nd speed	1/min:	1535	I	10000	
Shutoff	17 191 11 10	1222	1	2nd speed 1/min: 250	
electromagnet	: Volt:	12	+	Shutoff	
Del. quantity	cm3/:	27.037.0	+	electromagnet Volt: 12	
1	000s.:	(20.040,0)	+	Del. quantity cm3/: 20.0	060.0
	1/min:	1480	+	1000s.: -	
Shutoff		40	†	Chutaff alaskusmanaka	
electromagnet	Volt:	12	†	Shutoff electromagnet:	
Del. quantity		(54.066.0)	Ι	Cut-in	
3rd speed	1/min:		I	min voltage : 10.0)
Shutoff	171181111	1330	1	Rated voltage : 12.0	
electromagnet	: Volt:	12	+	· ·	
Del. quantity	/ cm3/:	77.081.0	+	Mounting and assembly d	imensions
` i	1000s.:	(75.582.5)	+		
4th speed	1/min:	1000	+	Designation	
Shutoff		43	+	K; "mm: - KF mm: 5,2	E 4
electromagnet	VOLT:	97.0 9/0	†	KF nm: 5,2 MS mm: 0.7	
Del. quantity	/ CM3/:	(80.586.5)	T	MS Name: O. 7	3 . 1
	1/min:		I	Remarks:	
5th speed Shutoff	ा सास्त्र		1	NUMBER NO	
electromagnet	t Volt:	: 12	1		
Del. quantity	v cm3/:	52.058.0	+		
2011 40-111010	1000s.	(50.060.0)	+		
			+		
Mech. shutof	f:		+		
Mech. Abstel	lung:		+		

Note inst. in remarks column

: CUM Test scheet : 09.04.92 Edition

replaces Calibrating oil : ISO-4113

: VE4/12F1100R378-9 Injection pump : 0 460 424 084 Type number

Customer Part-No. :

Customer-specific information

Customer : CDC

: 4 BT 3.9 IND. Engine

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina

bar: 250.00...253.00 Pressure

Perforated plate

mm: 0.5 diameter

Test inj. tubing : 1 688 901 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

mm: 0.3 Prestroke

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1.80

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 900 Speed

Setting value mm: 2.30...2.70

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 900 Speed

Setting value bar: 4.10...4.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 900 Speed

Del. quantity cm3/

1000s.: 73.00...74.00

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion 1000s.: (4.5)

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 15.00...21.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1160 Speed

Del. quantity cm3/

1000s.: 47.00...77.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 75.00...125.00 mind 1000s.: 75.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1100 2nd speed

mm: 3.10...3.90 TD travel mm: (2.80...4.20)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 900

mm: 2.30...2.70 mm: (1.80...3.20) Shutoff TD travel electromagnet Volt: 12
Del. quantity cm3/: 69.00...72.00
1000s.: (67.50...73.50)
12th speed 1/min: 900 Shutoff Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 73.00...74.00 1000s.: (70.50...76.50) Shutoff alactromacnet Volt: 12 1/min: 500 20th speed Shutoff Supply-pump pressure characteristic: electromagnet Volt: 12 Del. quantity cm3/: 77.50...85.50 1000s.: (75.50...87.50) 1/min: 500 1st speed Supply-pump bar: 2.30...2.90 pressure Mech. shutoff: Shutoff electromagnet Volt: 12 2nd speed 1/min: 900 Mech. Abstellung: 2nd speed 1/min: 1100 1st speed Supply-pump Del. quantity cm3/: 0.00...3.00 1000s.: bar: 4.10...4.70 pressure Shutoff electromagnet Volt: 12 3rd speed 1/min: 1100 Shutoff electromagnet volt: 12 3rd speed Supply-pump bar: 4.90...5.50 Electr. shutoff: pressure Shutoff electromagnet Volt: 12 Shutoff Overlow quantity at overflow valve: electromagnet volt: -1st speed 1/min: 500 Idle delivery: Shutoff electromagnet Volt: 12 1/min: 350 : 41.70...83.40 1st speed cm3/10s: (26.70...98.40) Shutoff quantity electromagnet Volt: 12
Del. quantity cm3/: 15.00...21.00
1000S.: (13.00...23.00)
Dispersion cm3/: 5.5
1000S.: (7.0)
2nd speed 1/min: 490 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 : 55.60...139.00 Overflow cm3/10s: (40.60...154.00) quantity Snutoff Delivery-quant. and breakaway char .: electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: -1/min: 1220 2nd speed Shutoff electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
1000S.: 5th speed 1/min: 1160 Automatic starting fuel delivery: 1st speed 1/min: 130 Shutoff 5th speed electromagnet Volt: 12 Del. quantity cm3/: 90.00...130.00 1000s.: -Shutoff electromagnet Volt: 12 Del. quantity cm3/: 32.50...37.50 1000S.: (30.00...40.00) 8th speed 1/min: 1130 1/min: 240 2nd speed 8th speed Shutoff Shutoff electromagnet Volt: 12
Del. quantity cm3/: 47.00...77.00
1000S.: electromagnet Volt: 12 Del. quantity cm3/: 40.00...80.00 1000s.: -1/min: 1100 9th speed

4th speed 1/min: 100 Shutoff

electromagnet Volt: 12
Del. quantity cm3/: 75.00...125.00
1000s.: -

Shutoff electromagnet:

Cut-in

min voltage : 10,0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mn: -

K KF mm: 5.0...5.4 mm: 1.2...1.4 mm: 18.8...20.8 mm: 12.5...15.9 MS XK XL.

Remarks:

: C.D.C. # 3 920 853

Note inst. in remarks column

Test scheet

: 14.04.92 Edition

replaces

Calibrating oil : ISO-4113

: VE4/12F1250R468 Injection pump

: 0 460 424 086 Type number

Customer Part-No. :

Customer-specific information

Customer : IVECO-FIAT

: 8040.45.4180 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil

return temp.

with thermometer : 40.00...48.00 Electronically: 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00

x Wall thickness : 2.00

mm: 450 x Length

Start of delivery

Indicator setting

Piston stroke mm: 1.0

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed

Charge press. hPa: 1000

Setting value mm: 2.60...3.00

Shutof?

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000 Speed

hPa: 1000 Charge press

Setting value bar: 6.50...7.10

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 700 Speed

Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 78.50...79.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 3.5

1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 43.50...44.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 3.5 1000s.: (5.0)

Full-load speed regulation

1/min: 1425 Speed

Charge press hPa: 1000

Del. quantity cm3/

1000s.: 22.00...28.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...110.00 mind 1000s.: 60.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

	+ Shutoff
Timing-device characteristic:	electromagnet Volt: 24 Overflow : 97.30180.70
2nd speed 1/min: 1100	4 quantity cm3/10s: (97.30180.70
Charge press hPa: 1000	1
TD travel mm: 3.604.40	+ Delivery-quant. and breakaway char.
mm: (3.104.90)	
Shutoff	+
electromagnet Volt: 24	1 1nd speed 1/min: 600
3rd speed 1/min: 1000	+ Charge-air pressure setting
Charge press hPa: 1000	+ point hPa: 500*
TD travel mm: 2.605.00	+ Shutoff
mm: (1.903.70)	+ electromagnet Volt: 24
Shutoff	Del. quantity cm3/: 63.0064.00
electromagnet Volt: 24	1000S.: (59.5067.50)
4th speed 1/min: 800	2nd speed 1/min: 1500
Charge press hPa: 1000	+ Charge press. hPa: 1000
TD travel mm: 0.100.90	+ Shutoff
nm: (0.001.40)	+ electromagnet Volt: 24
Shutoff	→ Del. quantity cm3/: 0.003.00
electromagnet Volt: 24	1000S.: (0.003.00)
5th speed 1/min: 1250	+ 5th speed 1/min: 1425
Charge press. hPa: 1000	+ Charge press. hPa: 1000
TD travel mm: 3.704.50	+ Shutoff
mm: (3.205.00)	electromagnet Volt: 24
Shutoff	bel. quantity cm3/: 22.0028.00
electromagnet Volt: 24	1000s.: (19.0031.00)
occupi one of the contract of	+ 9th speed 1/min: 1250
Supply-pump pressure characteristic:	+ Charge press. hPa: 1000
supply party product and account and	+ Shutoff
1st speed 1/min: 600	+ electromagnet Volt: 24
Charge press. hPa. 1000	4 Del. quantity cm3/: 70.0073.00
Supply-pump	1000s.: (68.0075.00)
pressure bar: 4.004.60	10th speed 1/min: 1000
Shutoff	+ Charge press. hPa: 1000
electromagnet Volt: 24	+ Shutoff
2nd speed 1/min: 1000	+ electromagnet Volt: 24
Charge press. hPa: 1000	+ Del. quantity cm3/: 71.0075.00
Supply-pump	1000s.: (69.5076.50)
pressure bar: 6.507.10	+ 12th speed 1/min: 700
Shutoff	Charge press. hPa: 1000
electromagnet Volt: 24	+ Shutoff
3rd speed 1/min: 1250	+ electromagnet Voit: 24
Charge press. hPa: 1000	+ Del. quyntity cm3/: 78.5079.50
Supply-pump	1000s.: (75.5082.50)
pressure bar: 7.708.30	18th speed 1/min: 600
Shutoff	+ Charge press. hPa: -
electromagnet Volt: 24	1 Shutoff
C C C C C C C C C C C C C C C C C C C	- electromagnet Volt: 24
Overlow quantity at overflow valve:	→ Del. quantity cm3/: 43.5044.50
Over com gazarre of the city than the city	1000s.: (40.5047.50)
1st speed 1/min: 600	+
Charge press. hPa: 1000	+ Mech. shutoff:
Shutoff	+ Mech. Abstellung:
electromagnet Volt: 24	
Overflow : 75.06119.54	+ 1st speed 1/min: 1250
quantity cm3/10s: (75.06119.54)	+ Charge press. hPa: 1000
2nd speed 1/min: 1250	Del. quantity cm3/: 0.003.00
Charge press. hPa: 1000	1000s.: (8.003.00)
Anterior Mark the comment of the com	T .

Shutoff electromagnet volt: 24 Electr. shutoff: 1/min: 350 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 350 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 13.00...17.00 1000s.: (10.00...20.00) Dispersion cm3/: 3.5 1000s.: (5.0) 2nd speed 1/min: 475 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1/min: 130 1st speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 60.00...110.00 1000s.: (60.00...110.00) 2nd speed 1/min: 230 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 30.00...50.02 1000s : (30.00...50.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 60.00...110.00 1000s.: (60.00...110.00) Shutoff electromagnet: Cut-in min voltage : 20.0 : 24.0 Rated voltage

Mounting and assembly dimensions:

mm: 3.2...3.8

mm: KOT mm: 0.7...1.1 Operate control lever after each manifold-pressure compensator pressure change.

Remarks:

Designation

G28

K KF

MS

Note inst. in remarks column

Test scheet 18.03.92 Edition : 09.11.88 replaces : ISO-4113 Calibrating oil

Injection pump : VE6/12F1250R173-8 : 0 460 426 101 Type number

Customer Part-No. :

Customer-specific information : CUMMINS/GB Customer

Engine : 6 BTA-590

1/min: 1250 Speed

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

bar: 247.00...253.00 Pressure

Test inj. tubing : Lochduese 0,5 mm

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 750 Charge press. hPa: 1000

Setting value mm: 1.40...1.80

Supply-pump pressure

1/min: 750 Speed Charge press hPa: 1000

Setting value bar: 3.20...3.80

Full-load del. with charge press.:

1/min: 750 Speed Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 82.00...83.00

cm3/: 4.0 Dispersion 1000S.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/ 1000s.: 40.00...41.00

Low-idle speed regulation

1/min: 375

Del. quantity cm3/

1000s.: 4.00...8.00

Del. quantity cm3/: 5.5

1000s.: (7.0)

Full-load speed regulation

1/min: 1300 Speed hPa: 1000 Charge press

Del. quantity cm3/

1000s.: 65.00...71.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...120.00

1000s.: 70.00

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050 hPa: 1000 Charge press

TD travel mm: 2.30...3.10 mm: (2.00...3.40)

1/min: 750 3rd speed

hPa: 1000 Charge press

mm: 1.40...1.80 TD travel mm: (0.90...2.30)

4th speed 1/min: 600

hPa: 1000 Charge press mm: 0.40...1.20 TD travel

mm: (0.16...1.50)

Supply-pump pressure characteristic:

1/min: 500 1st speed Charge press. hPa: 1000

Supply-pump

bar: 2.10...2.70 bar: (1.90...2.90) pressure

1/min: 750 2nd speed

Charge press. hPa: 1000 Supply-pump Delivery-quant. and breakaway char.: Inj.-qty.values,temp.-compensated bar: 3.20...3.80 pressure bar: (3.00...4.00) temperatura 1/min: 1050 3rd speed Charge press. hPa: 1000 1st speed 1/min: 700 Supply-pump Charge-air pressure-setting bar: 4.30...4.90 bar: (4.10...5.10) hPa: 450 pressure point Del. quantity cm3/: 67.00...68.00 1000S.: (63.00...72.00) 2nd speed 1/min: 1400 Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) 3rd speed 1/min: 1330 Overlow quantity at overflow valve: 1st speed Overflow 1/min: 500 : 41.70...83.40 cm3/10s: (41.70...83.40) 3rd speed 1/min: 1350 Charge press. hPa: 1000 Del. quantity cm3/: 15.50...55.50 1000S.: (15.50...55.50) 5+h speed 1/min: 1300 quantity | 1/min: 1250 2nd speed Charge press. hPa: 1000 Overflow: 55.6 : 55.60...139.00 cm3/10s: (55.60...139.00) quantity Delivery-quant and breakaway char .: 1/min: 700 1nd speed Charge-air pressure-setting Charge-air pressure-setting
point hPa: 450

Del. quantity cm3/: <7.00...68.00

1000s.: (63.00...72.00)

2nd speed 1/min: 1400

Charge press. hPa: 1000

Del. quantity cm3/: 0.00...3.00

1000s.: (G.00...3.00)

3rd speed 1/min: 1330

Charge press. hPa: 1000 Charge press. hPa: 1000

Del. quantity cm3/: 15.00...55.00

1000s.: (15.00...55.00)

5th speed 1/min: 1300

Charge press. hPa: 1000

Del. quantity cm3/: 65.00...71.00

1000s.: (62.00...74.00)

9th speed 1/min: 1250

Charge press. hPa: 1000 Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1250
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00) Charge press. hPa: 1000 Del. quyntity cm3/: 82.00...83.00 1000S.: (79 Idle delivery: 1/min: 500 18th speed Del. quantity cm3/: 40.00...41.00 1000s.: (36.00...45.00) 20th speed 1/min: 500 Charge press. hPa: 1000 Del. quantity cm3/: -4.00...4.00

Automatic starting fuel delivery:

1st speed 1/min: 200
Del. quantity cm3/: 60.00...110.00
1000S.: (60.00...110.00)

2nd speed 1/min: 370
Del. quantity cm3/: 20.00...60.00
1000S.: (20.00...60.00)

4th speed 1/min: 100 Del. quantity cm3/: 70.00...120.00 1000S.: (70.00...120.00)

Remarks:

Note inst. in remarks column

Test scheet 263 Copl. date: : 14.04.92 Edition

replaces

: ISO-4113 Calibrating oil

: VE6/12F1100R402 Injection pump : 0 460 426 166 Type number

Customer Part-No. : Customer Part-No. :

Customer-specific information

Customer : CDC

: 6 BTA- 590 I Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temo.

with thermometer: 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

mm: 0.3 Prestroke

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: +0.02(0.06)

Out Let : D

Injection pump setting values Test specifications in parentheses Timing-device travel

Speed 1/min: 900 Charge press. hPa: 1000

Setting value mm: 4.80...5.20

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 900 Speed Charge press hPa: 1000

Setting value bar: 4.70...5.30

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 750 Speed Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 71.50...72.50

Shutoff

electromagnet Volt: 24 cm3/: 4.0 Dispersion 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 700 Speed

Del. quantity cm3/

1000s.: 51.00...52.00

electromagnet Volt: 24

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/ 1000s.: 7.00...13.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1180 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 47.00...53.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 65.00...115.00

1000s.: 65.00 mind

Shutoff electromagnet Volt: 24	overflow : 55.50159.00 - quantity cm3/10s: (40.60153.00)
Inspection-pump test specifications Test specifications in parentheses	Delivery-quant. and breakaway char.:
Timing-device characteristic:	- 1nd speed 1/min: 700*
2nd speed 1/min: 1100	- Charge-air pressure-setting - point hPa: 350
Charge press hPa: 1000	- Shutoff
TD travel mm: 6.207.00 mm: (5.907.30)	electromagnet Volt: 24 Del. quantity cm3/: 64.5065.50
Shutoff	- 1000\$.; (61.0069.00)
electromagnet Volt: 24 3rd speed 1/min: 900	- 2nd speed 1/min: 1250 - Charge press. hPa: 1 00 0
Charge press hPa: 1000	- Shutoff
TD travel mm: 4.805.20	- electromagnet Volt: 24
mm: (4.305.70)	- Del. quantity cm3/: 0.003.00
Shutoff	- 1000s.: (0.003.00)
electromagnet Volt: 24	- 3rd speed 1/min: 1200
4th speed 1/min: 750	- Charge press. hPa: 1000
Charge press hPa: 1000	- Shutoff
TD travel mm: 3.504.30	electromagnet Volt: 24 Del. quantity cm3/: 22.5037.50
mm: (3.204.60)	1000s.: (22.5037.50)
electromagnet Volt: 24	- 5th speed 1/min: 1180
etectionagiet vott. 24	Charge press. hPa: 1000
Supply-pump pressure characteristic: -	- Shutoff
	electromagnet Volt: 24
1st speed 1/min: 750	- Del. quantity cm3/: 47.0053.00
Charge press. hPa: 1000	1000s.: (44.0056.00)
Supply-pump	9th speed 1/min: 1100
pressure bar: 4.004.60	- Charge press. hPa: 1000 - Shutoff
Shutoff electromagnet Volt: 24	electromagnet Volt: 24
2nd speed 1/min: 900	Del. quantity cm3/: 59.5062.50
Charge press. hPa: 1000	1000S.: (58.0064.00)
Supply-pump -	10th speed 1/min: 900
pressure bar: 4.705.30 -	Charge press. hPa: 1000
Shutoff	Shutoff
electromagnet Volt: 24	electromagnet Volt: 24 Del. quantity cm3/: 61.5064.50
3rd speed 1/min: 1100 - Charge press. hPa: 1000 -	10008:: (59.5066.50)
Supply-pump -	12th speed 1/min: 750
pressure bar: 5.506.10	Charge press. hPa: 1000
Shutoff	- Shutoff
electromagnet Volt: 24	electromagnet Volt: 24
-	Del. quyntity cm3/: 71.5072.50
Overlow quantity at overflow valve:	1000S.: (69.0075.00) 18th speed 1/min: 700
1st speed 1/min: 750	Charge press. hPa: -
Shutoff -	- Shutoff
electromagnet Volt: 24	electromagnet Volt: 24
Overflow: 41.7083.40	<pre>Del. quantity cm3/: 51.0052.00</pre>
quantity cm3/10s: (26.7098.40)	1000s.: (47.5055.50)
2nd speed 1/min: 1100	1
Charge press. hPa: 1000	Mech. shutoff:
Shutoff	Mech. Abstellung:
electromagnet Volt: 24	1st speed 1/min: 1100
•	y sub-upocon semilitie time

Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: 24 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1/min: 400 1st speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 7.00...13.00 1000S.: (5.00...15.00) cm3/: 5.5 Dispersion 1000s.: (7.0) 1/min: 500 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 70.00...120.00
1000s.: (70.00...120.00) 1/min: 450 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 10.00...50.00 1000s.: (10.00...50.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 65.00...115.00 1000s.: (65.00...115.00) Shutoff electromagnet: Cut-in

: 20.0 : 24.0

mm: 5.0...5.4

Mounting and assembly dimensions:

mm: -

MS mm: 1.3...1.7

Remarks: Heavy-duty fuel-injection pump for 2 DI-engines: only test using timingdevice-travel measuring device with metal jacket

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

H06

KF

min voltage

Rated voltage

Designation

Note inst. in remarks column

: CLIM Test scheet

: 14.04.92 Edition : 12.07.91 replaces Calibrating oil : ISO-4113

: VE6/12F1300R377-1 Injection pump : 0 460 426 174 Type number

Customer Part-No. :

Customer-specific information : CUMMINS Customer

: 6 BT 5.9 A Engine

Power KW: 217 1/min: 2600 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

mm: 0,3 Prestroke

(from BDC): +-0.02(0.04)

Start of delivery block

Piston stroke mm: 2.35

mm: +-0.02(0.06)

Outlet

Injection-pump setting values

H07

Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200 Charge press. hPa: 1000 Setting value mm: 1.40...1.80

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1200 Speed Charge press hPa: 1000

Setting value bar: 8.10...8.70

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 850 Speed Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 73.50...74.50

Shutoff

electromagnet Volt: 24 cm3/: 4.0Dispersion 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/ 1000s.: 50.50...51.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 9.0 1000s.: (9.0)

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/ 1000s.: 9.00...11.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1400 Speed Charge press hPa: 1000

Del. quantity cm3/ 1000s.: 54.00...60.00

electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...140.00
mind 1000s.: 60.00 Shutoff electromagnet Volt: 24 : 111.20...194.60 cm3/10s: (96.20...209.60) quantity Shutoff electromagnet Volt: 24 Delivery-quant. and breakaway char.: Inspection pump test specifications Test specifications in parentheses 1/min: 700* 1nd speed Timing-device characteristic: Charge-air pressure-setting hPa: 475 1/min: 1300 hPa: 1000 mm: 1.70...2.50 LDA-stroke mm: -2nd speed Shutoff Charge press electromagnet Volt: 24
Del. quantity cm3/: 63.00...64.00
1000S.: (59.50...67.50) TD travel mm: (1.40...2.80) Shutoff 1/min: 1600 2nd speed electromagnet Volt: 24 Charge press. hPa: 1000 Shucoff 1/min: 1200 3rd speed Charge press hPa: 1000 mm: 1.40...1.80 electromagnet Volt: 24 TD travel Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) mm: (0.90...2.30) Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 24 1/min: 1100 4th speed Charge press hPa: 1000 mm: 0.40...1.20 mm: (0.10...1.50) electromagnet Volt: 24 Del. quantity cm3/: 15.00...55.00 TD travel 1000s.: -Shutoff 1/min: 1400 electromagnet Volt: 24 5th speed Charge press. hPa: 1000 Shutoff Supply-pump pressure characteristic: electromagnet Volt: 24 Del. quantity cm3/: 54.00...60.00 1000S.: (51.00...63.00) 9th speed 1/min: 1300 1/min: 500 1st speed Charge press. hPa: 1000 Supply-pump Charge press. hPa: 1000 bar: 4.80...5.40 pressure Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24 Del. quantity cm3/: 66.00...69.00 1000S.: (64.50...70.50) 10th speed 1/min: 1100 2nd speed 1/min: 1200 Charge press. hPa: 1000 Supply-pump Charge press. hPa: 1000 Shutoff bar: 8.10...8.70 pressure Shutoff electromagnet Volt: 24 Del. quantity cm3/: 69.50...72.50 1000S.: (67.50...74.50) electromagnet Volt: 24 1/min: 1300 3rd speed Charge press. hPa: 1000 1/min: 850 12th speed Supply-pump Charge press. hPa: 1000 bar: 8.60...9.20 pressure Shutoff Shutoff electromagnet Volt: 24
Del. quyntity cm3/: 73.50...74.50
1000S.: (71.00...77.00)
18th speed 1/min: 500 electromagnet Volt: 24 Overlow quantity at overflow valve: 1/min: 500 Charge press. hPa: -1st speed Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 50.50...51.50 electromagnet Volt: 24 : 104.20...145.90 Overflow 1000s.: (47.00...55.00) cm3/10s: (89.20...160.90) quantity 20th speed 1/min: 500 1/min: 1300 2nd speed Charge press. hPa: 1000 Charge press. hPa: 1000

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: -1000s.: (81,50...91,50)

Mech. shutoff: Mech. Abstellung:

1/min: 1300 1st speed Charge press. hPa: 1000

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: 24

Electr. shutoff:

1/min: 350 1st speed

Charge press. hPa: -

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1/min: 350 1st speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 9.00...11.00

1000s.: (5.00...15.00)

cm3/: 5.5 Dispersion

1000s.: (7.0)

1/min: 450 2nd speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 0.00...4.00

1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1/min: 250 1st speed

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 50.00...110.00

1000s.: (50.00...110.00)

1/min: 400 2nd speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 20.00...60.00

1000s.: (20.00...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...140.00

1000s.: (60.00...140.00)

Shutoff electromagnet:

H09

Cut-in

min voltage : 20.0

: 24.0 Rated voltage

Mounting and assembly dimensions:

Designation

mn: -

KF mm: K-OT

mm: 1,2...1,6 MS

SVS max.

mm: 2,2 mm: 21,8...23,8 mm: 10,2...13.6 XL

Remarks:

: C.D.C. # 391 6987

Operate control lever after cach manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Heavy-duty fuel-injection pump for DI-engines: only test using timingdevice-travel measuring device with metal jacket

Note inst. in remarks column

Test scheet Edition : 14.04.92

replaces

: ISO-4113 Calibrating oil

Injection pump : VE6/12F1250R469 Type number : 0 460 426 198

Customer Part-No. :

Customer-specific information : IVECO-FIAT Customer

: 8060.45.4180 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating oil return temp.

with thermometer: 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250,00...253,00 Pressure

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery

Indicator setting Piston stroke mm: 1.0 Outlet | : A

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1000 Charge press. hPa: 1000 Setting value mm: 2.20...2.60

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000 Speed Charge press hPa: 1000

Setting value bar: 6.20...6.80

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 700 Speed Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 72.50...73.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 3.5 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 40.50...41.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 24 Del. quantity_cm3/: 4.0 1**00**0s.: (5.0)

Full-load speed regulation

1/min: 1400 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 47.00...53.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...110.00

1000s.: 60.00 mind

Shutoff

electromagnet Volt: 24

Inspection pump test specifications Test specifications in parentheses

H10

Timing-device characteristic:	1	1nd speed 1/min: Charge-air pressure-	
3rd speed 1/min: 1000	Ι	point hPa:	5/10
	T	Shutoff	J00
Charge press hPa: 1000	T	electromagnet Volt:	2/4
TD travel mm: 2.202.60 mm: (1.503.30)	T	Del. quantity cm3/:	50 50 40 50
	T	1000c	(56.0064.00)
Shutoff	T	2nd speed 1/min:	
electromagnet Volt: 24	7	Charge press. hPa:	1000
4th speed 1/min: 900	T	Shutoff	1000
Charge press hPa: 1000	T	electromagnet Volt:	24
TD travel mm: 0.801.60 mm: (0.302.10)	T	Del. quantity cm3/:	กักกรกก
	T	1000s	(0.003.00)
Shutoff	I	5th speed 1/min:	
electromagnet Volt: 24	T	Charge press. hPa:	1000
5th speed 1/min: 1250	Ι	Shutoff	1000
Charge press. hPa: 1000 TD travel mm: 3.704.50	Ι	electromagnet Volt:	24
TD travel mm: 3.704.50 mm: (3.205.00)	Ι	Del. quantity cm3/:	47 nn 53 nn
	T	1000 ·	(44.CO56.OO)
Shutoff	Ι	8th speed 1/min:	
electromagnet Volt: 24	Ι	Charge press. hPa:	
Complete management of the contraction of the contr	Ι	Shutoff	1000
Supply-pump pressure characteristic:	Τ	electromagnet Volt:	24
1st speed 1/min: 600	Ţ	Del. quantity cm3/:	54.00 70.00
Change many hear 1000	I	1000s ·	(54.0070.00)
Charge press. hPa: 1000	Ι	9th speed 1/min:	1250
Supply-pump pressure bar: 4.004.60	Ι	Charge press. hPa:	1000
· · · · · · · · · · · · · · · · · · ·	Ι	Shutoff	1000
Shutoff	Ι	electromagnet Volt:	24
electromagnet Volt: 24	Ι	Del. quantity cm3/:	66 50 69 50
2nd speed 1/min: 1000	T	1000s •	(64.5071.50)
Charge press. hPa: 1000	Τ	10th speed 1/min:	
Supply-pump pressure bar: 6.206.80	T	Charge press. hPa:	1000
• • • • • •	Ι	Shutoff	1000
Shutoff	Ι	electromagnet Volt:	24
electromagnet Volt: 24 3rd speed 1/min: 1250	Ι	Del. quantity cm3/:	67 50 71 50
Charge appear block 1000	Ι	1000s	(66.0073.00)
Charge press. hPa: 1000	Ι	12th speed 1/min:	700
Supply-pump pressure bar: 7.708.30	Ι	Charge press. hPa:	1000
pressure bar: 7.708.30 Shutoff	Ι	Shutoff	1000
electromagnet Volt: 24	Ĺ	electromagnet Volt:	24
etectionagnet voct. 24	Ţ	Del. quyntity cm3/:	72.50 73.50
Overlow quantity at overflow valve:	\perp	1000s.	(69.5076.50)
Over tow qualitity at over flow valve.	1	18th speed 1/min:	600
1st speed 1/min: 600	\perp	Charge press. hPa:	
Charge press. hPa: 1000	1	Shutoff	
Shutoff	1	electromagnet Volt:	24
electromagnet Volt: 24	1	Del. quantity cm3/:	40.5041.50
Overflow : 75.06119.54	1	1000s.	(37.5044.50)
quantity cm3/10s: (75.06119.54)	1	20th speed 1/min:	
2nd speed 1/min: 1250	\perp	Charge press. hPa:	1000
Charge press. hPa: 1000	\perp	Shutoff	
Shutoff	1	electromagnet Volt:	: 24
electromagnet Volt: 24	1	Del. quantity cm3/:	74.5079.50
Overflow : 97.30180.70	+	1000s.	(72.5081.50
quantity cm3/10s: (97.30180.70)	+		
அவ்வை (இரு இரு இரும்) (வழும்) நடிய வரும் நடிய வரும் பிறுவர் பிறுவர்	+	Mech. shutoff:	
Delivery-quant. and breakaway char.:	+	Mech. Abstellung:	
and the second of the second o	1	• • •	

1st speed 1/min: 1250 Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: 24 Electr. shutoff: 1/min: 350 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1/min: 350 1st speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 13.00...17.00 1000s.: (10.00...20.00) cm3/: 4.0 1000s.: (5.0) Dispersion 2nd speed 1/min: 475 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1/min: 130 1st speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 60.00...110.00 1000s.: (60.00...110.00) 2nd speed 1/min: 250 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 20.00...50.00 1000s.: (20.00...50.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 60.00...110.00 1000s.: (60.00...110.00) Shutoff electromagnet: Cut-in min voltage : 20.0 : 24.0 Rated voltage Mounting and assembly dimensions:

mm: -

Designation

K

H12

KF mm: KOT MS mm: 0.7...1.1

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

Note inst. in remarks column

Test scheet : 13.04.92 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F125OR419-2 : 0 460 426 199 Type number

Customer Part-No. :

Customer-specific information

Customer

: 6 BTAA 5.9 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 109 assembly

Openina

bar: 207.00...210.00 Pressure

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery block Piston stroke mm: 1.25

mm: +-0.02(0.06)

Outlet | : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000 Charge press. hPa: 1000 Setting value mm: 1.60...2.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1000 Speed Charge press hPa: 1000

Setting value bar: 6.30...6.90

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 850 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 76.00...77.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 57.50...58.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (6.0)

Low-idle speed regulation

Speed 1/min: 400

Del. quantity cm3/

1000s.: 8.50...12.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000S.: (7.0)

Full-load speed regulation

1/min: 1320 Speed Charge press hPa: 1000 Del. quantity cm3/ 1000s.: 68.00...74.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 100.00...160.00

1000s.: 100.0 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications

H13

Test specifications	in parentheses	<u>†</u>	1st speed 1/min: Charge press. hPa:	500
Timing-device charac	teristic:	+	Shutoff electromagnet Volt:	
Dud accord 4 today	1250	T	Overflow :	24 70 97 70
2nd speed 1/min:	1200	T	over tow cm2/10ct	(24 70 09 (0)
Charge press hPa:	1000	†	quantity cm3/10s:	4250
TD travel mm:	2.303.10	+	2nd speed 1/min:	1250
nm:	(2.003.40)	+	Charge press. hPa:	1000
Shutoff		1	Shutoff	
electromagnet Volt:	12	1	electromagnet Volt:	12
3rd speed 1/min:	1000	1	Overflow :	55.60139.00
	1000	T	quantity cm3/10s:	(40, 60, 153, 00)
Charge press hPa:	1000	T	qualitity this 105.	(40.00193.00)
TD travel mm:	1.602.00	+		
	(1.102.50)	+	Delivery-quant. and	breakaway char.:
Shutoff		+		
electromagnet Volt:	12	+		
4th speed 1/min:	850	1	1nd speed 1/min:	700*
	1000	1	Charge-air pressure	
	0.90 1.40	T		230
TD travel mm:	0.801.60	T		
	(0.501.90)	+		7.0
Shutoff		+	Shutoff	
electromagnet Volt:	12	+	electromagnet Volt:	12
8th speed 1/min:	450	1	Del. quantity cm3/:	64.0065.00
		1	10005	(60.5068.50)
		T		
TD travel mm:	2.003.00	†		
: מצח	(1.803.20)	+	Charge press. hPa:	1000
KSB/AFB		+	Shutoff	
valve Volt:	12	+	<pre>electromagnet Volt:</pre>	12
Shutoff		1	Del. quantity cm3/:	0.003.00
electromagnet Volt:	15	L	1000s	(0.003.00)
etectrollagiet vott.	16	T	3rd speed 1/min:	
- •		T		
Supply-pump pressure	e characteristic:	+	Charge press. hPa:	1600
		+	Shutoff	
1st speed 1/min:	850	+	electromagnet Volt:	12
Charge press. hPa:		1	Del. quantity cm3/:	15.0045.00
Supply-pump	1000	1	1000s	(15.0045.00)
	5.706.30	1	5th speed 1/min:	1320
	3.700.30	T		
Shutoff	40	+	Charge press. hPa:	1000
electromagnet Volt:	12	+	Shutoff	
2nd speed 1/min:		+	electromagnet Volt:	12
Charge press. hPa:	1000	+	Del. quantity cm3/:	68.0074.00
Supply-pump		+	1000s.:	(65.0077.00)
pressure bar:	6.306.90	1	9th speed 1/min:	
	0.300.70	L	Charge press. hPa	
Shutoff	13	Ţ		1000
electromagnet Volt:	12	+	Shutoff	. 49
3rd speed 1/min:		+	electromagnet Volt:	12
Charge press. hPa:	1000	+	Del. quantity cm3/	75.5078.50
Supply-pump		+		(74.0080.00)
pressure bar:	7.408.00	1	10th speed 1/min:	: 1150
Shutoff		1	Charge press. hPa	: 1000
	12	1	Shutoff	
electromagnet Volt:	ະດາ	T	electromagnet Volt:	. 12
4th speed 1/min:		T	Pol mandida	יוב
Ψ '	1000	+	Del. quantity cm3/	. 02.0003.00
Supply-pump		+		: (80.0087.00)
pressure bar:	3.904.50	+	12th speed 1/min.	
Shutoff		+	Charge press. hPa	
electromagnet Volt:	12	1	Shutoff	
etectionagnet vott.	1 -	1	electromagnet Volt	• 12
0		T	Del. quyntity cm3/	ים לל מת לל
Overlow quantity at	. Over tow valve:	T	1000e	· (73.5079.50)
			11 = 4 1	

1/min: 500 18th speed Charge press. hPa: -Shutoff electromagnet Volt: 12 Del. quantity cm3/: 58.50...59.50 1000s.: (55.00...63.00) 20th speed 1/min: 500 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 78.00...86.00 1000s.: (78.00...86.00) Mech. shutoff: Mech. Abstelluna: 1/min: 1250 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1/min: 400 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 8.50...12.50 1000s.: (5.50...15.50) Dispersion cm3/: 5.5 1000s.: (7.0) 1/min: 470 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1st speed 1/min: 130 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 110.00...170.00 1000s.: (110.00...170.00) 1/min: 250 2nd speed Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 50.00...80.00 1000s.: (50.00...80.00)

1/min: 100

4th speed

H15

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 100.00...160.00 1000s.: (100,00...160.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: 3.6...3.8 Κř rim: KOT MS mm: 0.8...1.0 LDA stroke mm: 7.0 Remarks: : c.D.c. # 392 1613 * Correction at adjusting nut (46) Operate control lever after each manifold-pressure compensator pressure change. Heavy-duty fuel-injection pump for DI-engines: only test using timingdevice-travel measuring device with metal jacket

Note inst. in remarks column

Test scheet

: 13.04.92 Edition

replaces

: ISO-4113 Calibrating oil

: VE6/12F11COR371-2 Injection pump

: 0 460 426 201 Type number

Customer Part-No. :

Customer-specific information

Customer : CASE

: 6 T 590 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil

return temp.

with thermometer : 40.00...48.00 Electronically: 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

bar: 250.00...253.00 Pressure

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

mm: 840 x Length

Start of delivery block mm: 1.5 Piston stroke

mm: +-0.02(0.06)

: D Outlet

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 700 Speed

Setting value mm: 1.30...1.70

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 700 Speed

Setting value bar: 4.70...5.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 700 Speed

Del. quantity cm3/

1000s.: 76.00...77.00

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion

1000s.: (4.5)

Low-idle speed regulation

1/min: 450 Speed

Del. quantity cm3/

1000s.: 8.00...12.00

Shutoff

alectromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1160

Del. quantity cm3/

1000s.: 45.00...51.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 80.00...120.00

1000s.: 80.00 mind

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1100 2nd speed

mm: 3.90...4.70 TD travel

mm: (3.60...5.00)

Shutoff

electromagnet Volt: 12

1/min: 700 3rd speed

mm: 1.30...1.70 TD travel

mm: (0.80...2.20)

Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
4th speed 1/min: 500	Del. quantity cm3/: 65.5068.50
	10005.: (64.0070.00)
	12th speed 1/min: 700
mm: (0.001.00)	
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
	Del. quyntity cm3/: 76.0077.00 1000s.: (74.5078.50)
Supply-pump pressure characteristic:	1000s.: (74.5078.50)
and the second s	+ 20th speed 1/min: 500
1st speed 1/min: 500	Shutoff
	+ electromagnet Volc: 12
Supply-pump pressure bar: 3.804.40	Del. quantity cm3/: 68.0076.00
	1000S.: (66.0078.00)
Shutoff	† 19005.: (00.0070.007
electromagnet Volt: 12	†
2nd speed 1/min: 700	+ Mech. shutoff:
Supply-pump	4
pressure bar: 4.705.30	↓ Electr. shutoff:
Shutoff	
	1st speed 1/min: 450
electromagnet Volt: 12	Del. quantity cm3/: 0.003.00
3rd speed 1/min: 1100	4000c (0.00 7.00)
Supply-pump	19098.: (0.003.00)
pressure bar: 6.507.10	+ Shutoff
Shutoff	+ electromagnet volt: -
electromagnet Volt: 12	
	<pre>+ Idle delivery:</pre>
Overlow quantity at overflow valve:	1
over tow quarterly at over row vacve.	+ 1st speed 1/min: 450
Ant mand Almina FOO	Shutoff
1st speed 1/min: 500	
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 8.0012.00
Overflow : 41.7083.40	1000s.: (5.0015.00)
quantity cm3/10s: (26.7098.40)	+ Dispersion cm3/: 5.5
2nd speed 1/min: 1100	1000s.: (7.0)
Shutoff	+ 2nd speed 1/min: 550
electromagnet Volt: 12	+ Shutoff
Overflow : 55.60139.00	electromagnet Volt: 12
quantity cm3/10s: (40.60153.00)	+ Del. quantity cm3/: 0.003.00
qualitity (mp/103. (%).co123.007	10005.: (0.003.00)
No.1 de como accomo a made hannal accomo a character	10000 (0.005.00)
Delivery—quant. and breakaway char.:	T Automotic stanting fuel delivery
	+ Automatic starting fuel delivery:
0 1 1 4/: 4070	T 1-1 1/ 100
2nd speed 1/min: 1230	+ 1st speed 1/min: 180
Shutoff	† Shucoff
electromagnet Volt: 12	+ electromagnet Volt: 12
Del. quantity cm3/: 0.003.00	+ Del. quantity cm3/: 80.00140.00
1000s.: (0.003.00)	+ 1000s.: (80.00140.00)
3rd speed 1/min: 1190	+
Shutoff	+ 2nd speed 1/min: 350
electromagnet Volt: 12	+ Shutoff
Del. quantity cm3/: 10.0030.00	electromagnet Volt: 12
10005.: (10.0030.00)	Del. quantity cm3/: 40.0080.00
	1000s.: (40.0080.00)
Shutoff	10003 (40.0000.00)
electromagnet Volt: 12	† //h 1 // 1 400
5th speed 1/min: 1160	+ 4th speed 1/min: 100
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
Del. quantity cm3/: 45.0051.00	+ Del. quantity cm3/: 80.00120.00
10005.: (42.0054.00)	1000s.: (80.00120.00)
9th speed 1/min: 1100	1
ren apecu minine mo	t .

Shutoff electromagnet:

Cut-in

: 10.0 : 12.0 min voltage Rated voltage

Mounting and assembly dimensions:

Designation

K

mm: -mm: 5.0...5.4 mm: 0.8...1.2 KF MS

Remarks: Heavy-duty fuel-injection pump for 06 DI-engines: only test using timing-device-travel measuring device with metal jacket

Note inst. in remarks column

Test scheet : 14.04.92 Edition : 18.02.91 replaces Calibrating oil : ISO-4113

: VE4/8F2400R348 Injection pump : 0 460 484 027 Type number

Customer Part-No. :

Customer-specific information

Customer

: 086-1.6L Engine

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40.00...48.00 Electronically: 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Openina

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed

Setting value mm: 3.10...3.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

H19

Setting value bar: 5.00...5.60

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Speed

Del. quantity cm3/ 1000s.: 31.30...32.30

Shutoff

electromagnet Volt: 12 cm3/: 2.0 Dispersion 1000s.: (3.0)

Low-idle speed regulation

1/min: 425 Speed

Del. quantity cm3/

1000s.: 7.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

1/min: 550 Speed

Del. quantity cm3/

1000s.: 3.50...4.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2650 Speed

Del. quantity cm3/

1000s.: 12.00...16.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...85.00

1000s.: 35.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed

Inj.-qty. cm3/

difference 1000S.: 5.00...11.00 *

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1250 1.Speed

1/min: 2800 2nd speed TD-travel Shutoff mm: 0.60...0.80 * difference electromagnet Volt: 12
Del. quantity cm3/: 0.00...6.00
1000S.: (0.00...6.00)
5th speed 1/min: 2650 Shutoff electromagnet Volt: 12 Inspection-pump test specifications Test specifications in parentheses 5th speed Shutoff Timing-device characteristic: 1/min: 2250 mm: 7.30...8.10 mm: (7.00...8.40) 2nd speed Shutoff TD travel Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 mm: 3.10...3.50 min: (2.60...4.00) Shutoff TD travel Shutoff electromagnet Volt: 12 4th speed 1/min: 750 12th speed mm: 1.10...1.90 Shutoff TD travel mm: (0.80...2.20) Shutoff electromagnet Volt: 12 20th speed Shutoff Supply pump pressure characteristic: electromagnet Volt: 12
Del. quantity cm3/: 23.00...26.00
1000S.: (21.50...27.50)
Charge press. hPa: 400
Shutoff 1/min: 600 1st speed Supply-pump bar: 3.40...4.00 pressure Shutoff electromagnet Volt: 12.0 Del. quantity cm3/: 24,0...30.0 1000s.: (21.0...33.0) electromagnet Volt: 12 2nd speed 1/min: 1250 Supply-pump pressure bar: 5.00...5.60 Mech. shutoff: Shutoff electromagnet Volt: 12 3rd speed 1/min: 2250 Electr. shutoff: Supply-pump bar: 7.30...7.90 1/min: 425 1st speed pressure Del. quantity cm3/: 0.00...3.00 Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 12 Shutoff Overlow quantity at overflow valve: electromagnet volt: -1/min: 600 Damper set qty.: 1st speed Shutoff LFG-setting: electromagnet Volt: 12 : 41.70...83.40 solidale con carcassa: Overflow cm3/10s: (27.80...97.30) 1/min: 2250 Idle delivery: quantity 2nd speed 1/min: 425 1st speed Shutoff electromagnet Volt: 12 Overflow : 55.60...138.90 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 7.00...9.00
1000S.: (4.00...12.00)
2nd speed 1/min: 400 cm3/10s: (41.70...152.90) quantity Delivery-quant. and breakaway char.: Shutoff electromagnet Volt: 12

Del. quantity cm3/: 8.50...11.50

1000s.: (6.00...14.00)

High Idle:

1/mi: 525 1st speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 7.00...9.00 1000S.: (4.00...12.00)

Residual:

1/min: 550 1.Rotacao

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 3.50...4.50 1900s.: (2.00...6.00)

1/min: 500 2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.00...7.00 1000s.: (3.50...8.50)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 3rd speed

cm3/: + 0.0...3.0 #

Inj.—qty. cm3/: + difference 1000s.: -

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1/min: 1250 1st speed

TD-travel : 1.30...1.70 #

mm: difference

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 1250 3rd speed

Supply pump-

: 0.90...1.30 # pressure

bar: (0.70...1.50) difference

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1/min: 180 1st speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00)

1/min: 380 2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 15.00...35.00 1000s.: (15.00...35.00)

1/min: 100 4th speed Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00)

Shurtoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3,2...3,4 mm: 5,3...5.7 K KF mm: 1,4...1.6 MS

Remarks:

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual quantity adjusting screw 2 mm.

Note inst. in remarks column

Test scheet : VWW 1.4 A : 13.04.92 Edition : 02.12.91 replaces Calibrating oil : ISO-4113

: VE4/8F2450L331-2 Injection pump : 0 460 484 033 Type number

Customer Part-No. :

Customer-specific information

: 1/4 Customer

: 031.2 Engine

KW: 35.0 Power

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147.00...150.00 Pressure

Test ini. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Lenath

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1600 Speed

Setting value mm: 3.60...4.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1600 Speed

Setting value bar: 5.90...6.50

Shutoff

electromagnet Volt: 12

Full-Load del. w/out charge press.:

1/min: 1500

Del. quantity cm3/ 1000s.: 24.30...25.30

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

1/min: 575 Speed

Del. quantity cm3/

1000s.: 2.50...3.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2700 Speed

Del. quantity cm3/ 1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 32.00...82.00 mind 1000s.: 32.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Ini.-qty.dif.measurement:

1/min: 1250 Speed

cm3/Inj.-qty.

difference 1000s.: 5.50...11.50

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV) 1.Speed 1/min: 1250

TD-travel

mm: 0.60...0.80 difference

Shutoff

electromagnet Volt: 12 SP press.-dif.measurement pompa di mandata (FP) 1/min: 1250 1.Speed

Supply pump pressure	+ 3rd speed 1/min: 2975 + Shutoff
difference bar: 0.801.20	+ electromagnet Volt: 12
Shutoff	→ Del. quantity cm3/: 0.006.00
electromagnet Volt: 12	+ 1000S.: (0.006.00)
	+ 5th speed 1/min: 2700
Inspection-pump test specifications	+ Shutoff
Test specifications in parentheses	+ electromagnet Volt: 12
Test open in our similar	+ Del. quantity cm3/: 10.0014.00
Timing-device characteristic:	10005.: (8.0016.00)
Thirting device character factor.	+ 8th speed 1/min: 2575
1st speed 1/min: 1600	+ Shutoff
TD \$ravel mm: 3.604.00	electromagnet Volt: 12
mm: (3.104.50)	Del. quantity cm3/: 15.5025.50
@lectromagnet Volt: 12	10005.: (14.5026.50)
2nd speed 1/min: 2250	9th speed 1/min: 2250
TD travel mm: 6.407.20	+ Shutoff
mm: (6.107.50)	electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 22.5024.50
	10005.: (21.3025.70)
electromagnet Volt: 12	10th speed 1/min: 600
4th speed	Shutoff
mm: (0.301.70)	electromagnet Volt: 12 Del. quantity cm3/: 17.0022.00
Shutoff	1000S.: (14.5024.50)
electromagnet Volt: 12	10005: (14.5024.50)
	12th speed 1/min: 1500
Supply-pump pressure characteristic:	+ Shutoff
4	+ electromagnet Volt: 12
1st speed 1/min: 800	† Del. quyntity cm3/: 24.3025.30
Supply-pump	10005.: (21.8927.80)
pressure bar: 3.604.20	+ 20th speed` 1/min: 800
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
2nd speed 1/min: 1600	Del. quantity cm3/: 20.5023.50
Supply-pump	1000s.: (19.0025.00)
pressure bar: 5.906.50	+
Shutoff	+ Mech. shutoff:
electromagnet Volt: 12	+
3rd speed 1/min: 2250	+ Electr. shutoff:
Supply-pump	†
pressure bar: 7.708.30	1 1st speed 1/min: 450
Shutoff	+ Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	10008.: (0.003.00)
	+ Shutoff
Overlow quantity at overflow valve:	+ electromagnet volt: -
•	+
1st speed 1/min: 800	† Damper set qty.:
Shutoff	† .
electromagnet Volt: 12	+ LFG-setting:
Overflow : 41.7083.40	+ solidale con carcassa:
quantity cm3/10s: (26.8098.30)	† Idle delivery:
2nd speed 1/min: 2250	+
Shutoff	1st speed 1/min: 425
electromagnet Volt: 12	+ Shutoff
Overflow : 55.60138.00	+ electromagnet Volt: 12
quantity cm3/10s: (40.70153.90)	+ Del. guantity cm3/: 9.5011.50
•	+ 1000S.: (6.5014.50)
Delivery-quant. and breakaway char.:	2nd speed 1/min: 450
	+ Shutoff
	+ electromagnet Volt: 12

Del. quantity cm3/: 5.50...8.50

1000s.: (3.00...11.00) cm3/: 2.0

Dispersion 1000s.: (3.0)

Residual:

1/min: 575 1.Rotacao

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 2.50...3.50 1000s.: (1.00...5.00) 2nd speed 1/min: 525

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 3.00...5.00 1000s.: (1.50...6.50)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1250 Inj.-qty. cm3/ : 5.50...11.50 difference 1000s.: (4.50...12.50)

Shurcoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1st speed 1/min: 1250

: 0.60...0.80 TD-travel mm: (0.60...0.80) difference

Shutoff

electromagnet Volt: 12

SP press.—dif.measurement: pompa di mandata (FP): 1/min: 1250 1st speed

Supply pump-

: 0.80...1.20 pressure bar: (0.60...1.40) difference

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1/min: 200 1st speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 30.00...80.00 1000s.: (30.00...80.00)

1/min: 400 2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 10.00...30.00 1000s.: (10.00...30.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 32.00...82.00

1000s.: (32.00...82.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 mm: 5.6...6.0 mm: 1.2...1.6 Κ ΚF MS

Remarks:

Overflow restriction 0.55 mm - Part No.

..303

Note inst. in remarks column

Test scheet : VWW 1.9 C1 : 14.10.91 Edition

replaces

Calibrating oil : ISO-4113

: VE4/8F1500R401 Injection pump : 0 460 484 036 Type number

Customer Part-No. :

Customer-specific information

Customer

: 028.B 1.9L. Engine

KW: 38 Power

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Openina

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke nm: 1.0

 $(from BDC): \leftarrow 0.02(0.04)$

Injection pump setting values Test specifications in parentheses

Timing device travel

1/min: 1400 Speed

Setting value mm: 4.00...4.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1400 Speed

Setting value bar: 5.80...6.40

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1400 Speed

Del. quantity cm3/

1000s.: 34.50...35.50

Shutoff

electromagnet Volt: 12 cm3/: 2.0 Dispersion 10005.: (3.0)

Low-idle speed regulation

1/min: 430 Speed

Del. quantity cm3/ 1000s.: 6.00...10.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000S.: (3.0)

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...55.00 mind 1900s.: 35.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 1400

mm: 4.00...4.40 TD travel mm: (3.50...4.90)

Shutoff

electromagnet Volt: 12

1/min: 750 4th speed

mm: 1.60...2.40 TD travel iam: (1.30...2.70)

Shutoff

electromagnet Volt: 12

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 3.70...4.30 pressure

bar: (3.50...4.50)

Shutoff

electromagnet Volt: 12 2nd speed 1/min: 1400

H25

bar: 5.80...6.40 pressure bar: (5.60...6.60) Electr. shutoff: Shutoff 1/min: 430 1st speed electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Overlow quantity at overflow valve: Shutoff 1/min: 500 electromagnet volt: -1st speed Shutoff Idle delivery: electromagnet Volt: 12 : 41.70...83.40 Overflow 1/min: 430 cm3/10s: (27.80...97.30) 1st speed quantity Shutoff 2nd speed 1/min: 1400 electromagnet Volt: 12 Shutoff Del. quantity cm3/: 6.00...10.00 electromagnet Volt: 12 Overflow : 55.60...138.90 1000s.: (4.00...12.00) cm3/: 2.0 1000s.: (3.0) 1/min: 550 cm3/10s: (41.70...152.90) Dispersion quantity Shutoff 2nd speed electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Delivery quant. and breakaway char .: Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) 1/min: 1600 2nd speed Automatic starting fuel delivery: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...6.00 1st speed 1/min: 180 1000s.: (0.00...6.00) Shutoff electromagnet Volt: 12 Dal. quantity cm3/: 30.00...64.00 1000S.: (30.00...64.00) 1/min: 1570 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...6.00 1000s.: (0.00...12.00) 1/min: 380 2nd speed Shutoff 5th speed 1/min: 1550 electromagnet Volt: 12 Del. quantity cm3/: 10.00...30.00 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 8.50...12.00 1000s.: (1.50...22.50) 1000s.: (10.00...30.00) 1/min: 1530 1/min: 100 4th speed 6th speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...55.00 1000s.: (35.00...55.00) electromagnet Volt: 12
Del. quantity cm3/: 16.50...28.50
1000s.: (12.00...33.00)
7th speed 1/min: 1510 Shutoff electromagnet: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 27.00...39.00 Cut-in 1000s.: (22.50...43.50) 1/min: 1400 : 10.0 min voltage Rated voltage 12th speed Shutoff Mounting and assembly dimensions: Designation mm: 3.2...3.4 mm: 5.2...5.6 KF Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.20...28.20 1000S.: (23.70...29.70) mm: 1.1...1.5 MS mm: 17.0...19.0 XΚ mm: 11.8...15.2 XL

Mech. shutoff:

Supply-pump

Remarks:

Note inst. in remarks column

: REN 2,0 P4 Test scheet : 14.04.92 Edition : 18.02.91 replaces : ISO-4113 Calibrating oil

Injection pump : VE4/8F2300R317-3 : 0 460 484 041 Type number

Customer Part-No.:

Customer-specific information Customer : RNUR

: F8Q - 742 Engine

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer: 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holler assembly : 1 688 901 022

Openina |

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery mm: -Prestroke (from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed Setting value mm: 4.10...4.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

H28

Setting value bar: 4.50...5.10

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250

Del. quantity cm3/

1000s.: 31.00...32.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 410

Del. quantity cm3/

1000s.: 6,5...10,5

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2,5 1000s.: (3,0)

Residual-Delivery Setting

1/min: 500 Speed

Del. quantity cm3/ 1000s.: 1.00...5.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2450 Speed

Del. quantity cm3/ 1000s.: 22.00...28.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 40.00...70.00 mind 1000s.: 40.00

mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1/min: 1250 Speed

cm3/

Inj.-qty. cm3/ difference 1000s.: 9.00...13.00

Shutoff

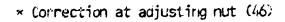
electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1250

TD-travel	+	1st speed 1/min:	750
difference mm: 0.30	0.50	Shutoff	
Shutoff	4	electromagnet Volt:	12
electromagnet Volt: 12	+	Overflow cm3/10s:	41.7083.40
.	÷	quantity cm3/10s:	(26.7098.40)
Inspection-pump test spec	cifications +	2nd speed 1/min:	2250
Test specifications in pa	arentheses +	Shutoff	
	+	electromagnet Volt:	: 12
Timing-device characteris	stic: ∔	Overflow :	55.60139.00
g active and a	4	quantity cm3/10s	(40.60153.00)
2nd speed 1/min: 2000	4	•	
TD travel mm: 7.40	8.20	Delivery-quant. and	d breakaway char.:
mm: (7.1)	08.50)	,	•
Shutoff	•		
electromagnet Volt: 12	1	2nd speed 1/min	2950
3rd speed 1/min: 1250	-}-	Shutoff	
TD travel mm: 4.10	.4.50	electromagnet Volt	: 12
	05.00)	Del. quantity cm3/	0.005.00
Shutoff	1	1000s	(0.005.00)
electromagnet Volt: 12	1	3rd speed 1/min	2650
4th speed 1/min: 750	. 1	Shutoff	
TD travel mm: 1.70	2 50	electromagnet Volt	: 12
	02.80)	Del. quantity cm3/	7.0015.00
Shutoff	1	10005	(6.0016.00)
electromagnet Volt: 12	\mathbf{I}	5th speed 1/min	· 2450
8th speed 1/min: 500	I	Shutoff	. [470
TD travel mm: 1.90)4.30 B	electromagnet Volt	• 12
	04.30)	Del. quantity cm3/	22 00 28 00
	U4.30)	1000s	(21.0029.00)
KSB/AFB	T	9th speed 1/min	
valve Volt: 12	Ī	Shutoff	. 2630
Shutoff	Ť		. 12
electromagnet Volt: 12	T	electromagnet Volt Del. quantity cm3/	. 71 50 77 50
9th speed 1/min: 310	7 700 4	vet. quantity this/	: (30.2034.80)
)3.00 A +		
	(03.00)	10th speed 1/min	: 2000
KSB/AFB	Ť	Shutoff	. 12
valve Volt: 12	†	electromagnet Volt	: 16 : 70 70 72 70
Shutoff	†	Del. quantity cm3/	: (29.0033.60)
electromagnet Volt: 12	†	11+6 annual 1/min	. 149.0033.007
	†	11th speed 1/min	: 1025
Supply-pump pressure cha	racteristic:	Shutoff	. 12
4 4 1 750	†	electromagnet Volt	: 14 : 20 70 72 70
1st speed 1/min: 750	†	Del. quantity cm3/	: 27.1032.10 : 139.00 27.50\
Supply-pump	, , , , , , , , , , , , , , , , , , , ,		: (28.9033.50)
pressure bar: 3.10	J3.70 †	12th speed 1/min	: 1250
Shutoff	†	Shutoff	. 12
electromagnet Volt: 12	, †	electromagnet Volt	: 14
2nd speed 1/min: 1250	J †	Del. quyntity cm3/	(20, 20, 77, 90)
Supply-pump			: (29.2033.80)
pressure bar: 4.50	J5.10 †	20th speed 1/min	: 750
Shutoff	†	Shutoff	. 45
electromagnet Volt: 12		electromagnet Volt	: 16
3rd speed 1/min: 2000	·	Del. quantity cm3/	: 30.1033.10 : /30.70 77.00\
Supply-pump	, , , , , , , , , , , , , , , , , , ,	TUUUS.	: (29.3033.90)
pressure bar: 6.40	J/.UU †	and the state of the	
Shutoff	+	Mech. shutoff:	
electromagnet Volt: 12	+	-1 1.4 PP	
	+	Electr. shutoff:	
Overlow quantity at over	rtlow valve:	A 1	. /80
	+	1st speed 1/mir	1: 41U

: 0.10...0.50 ' Del. quantity cm3/: 0.00...3.00 TD-travel mm: (0.00...0.60) 1000s.: (0.00...3.00) difference Shutoff Shutoff electromagnet Volt: 12 electromagnet volt: -SP press.-dif.measurement: Damper set qty.: pompa di mandata (FP): 1st speed 1/min: 1250 LFG-setting: solidale con carcassa: Supply pump-: 0.10...0.30 * Idle delivery: pressure bar: (0.10...0.30) difference Shutoff 1/min: 410 1st speed electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.50...10.50 10COS.: (4.50...12.50) 3rd speed 1/min: 1250 Supply pump-: 0.20...0.60 ' pressure bar: (0.20...0.60) difference Shutoff High Idle: electromagnet Volt: 12 1/mi: 500 1st speed Automatic starting fuel delivery: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...11.00 1/min: 210 1st speed 1000s.: (5.00...13.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...75.00 Residual: 1000s.: (45.00...75.00) 1/min: 500 1.Rotacao 1/min: 310 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 1.00...5.00 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.00...45.00 1000s.: (1.00...5.00) 1000s.: (15.00...45.00) Load-dependent start of delivery: 1/min: 100 Inj.-qty.dif.measurement: 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...70.00 1000s.: (40.00...70.00) 1/min: 1250 1st speed Inj.-qty. cm3/ : 7.70...9.70 * difference 1000S.: -Shutoff Shutoff electromagnet: electromagnet Volt: 12 3rd speed 1/min: 1250 Inj.—qty. cm3/: 9.00...13.00# Cut-in Inj.—qty. difference 1000s.: min voltage : 10.0 : 12.0 Rated voltage Shutoff electromagnet Volt: 12 Mounting and assembly dimensions: 1/min: 1250 5th speed cm3/: +2.00...8.00Inj.-qty. Designation difference 1000S.: mm: 3,2...3,4 mm: 5,3...5,7 mm: 1,1...1,5 Shutoff KF electromagnet Volt: 12 MS SVS max. mm: 2,7 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 Remarks: TD-travel : 0.30...0.50 # mm: (0.30...0.50) Operate control lever after each difference manifold-pressure compensator pressure Shutoff change. electromagnet Volt: 12 3rd speed 1/min: 1250



A = KSB adjustment point B = KSB curve point

Note inst. in remarks column

Test scheet

: 10.04.92 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/8F2300R463 : 0 460 484 051 Type number

Customer Part-No. :

Customer-specific information : FIAT-AUTO Customer

: M708 BA/FA Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer: 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery

Indicator setting Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed

Setting value mm: 5.10...5.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500

Setting value bar: 5.30...5.90

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1500

Del. quantity cm3/ 1000s.: 28.30...29.30

Shutoff

electromagnet Volt: 12 Dispersion cm3/: (2.5) 1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 400

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Full-load speed regulation

1/min: 2500 Speed

Del. quantity cm3/

1000s.: 17.00...23.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 37.00...63.00
mind 1000S.: 37.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-gty.dif.measurement:

1/min: 1500 Speed Charge press hPa: 12 cm3/ Inj.—qty.

difference 1000S.: 7.00...13.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1500 1.Speed

TD-travel

mm: 0.70...0.90 difference

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...1.60 1000S.: (0.00...1.60) 3rd speed 1/min: 2700 Inspection pump test specifications Test specifications in parentheses 3rd speed Shutoff Timing device characteristic: 1st speed 1/min: 2300 mm: 8.60...9.40 TD travel mm: (8.30...9.70) Shutoff electromagnet Volt: 12
Del. quantity cm3/: 17.00...23.00
1090S.: (14.00...26.00)
9th speed 1/min: 2300 9th speed Shutoff Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 electromagnet Volt: 12 Del. quantity cm3/: 29.40...31.80 1000s.: (28.20...33.10) mm: 1.60...2.40 TD travel mm: (1.10...2.90) 10th speed 1/min: 1000 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 28.30...30.70 1000s.: (27.20...31.80) Supply-pump pressure characteristic: 1/min: 600 1/min: 2300 12th speed 1st speed Shutoff Supply-pump electromagnet Volt: 12 Del. quyntity cm3/: 28.30...31.30 1000s.: (26.30...33.30) bar: 7.40...8.00 pressure Shutoff electromagnet Volt: 12 2nd speed 1/min: 1500 2nd speed -Mech. shutoff: Supply-pump bar: 5.30...5.90 pressure Electr. shutoff: Shutoff electromagnet Volt: 12 3rd speed 1/min: 600 1st speed 1/min: 400
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00) 3rd speed Supply-pump bar: 3.10...3.70 pressure Shutoff electromagnet volt: -Overlow quantity at overflow valve: 1st speed Shutoff 1/min: 600 Idle delivery: 1st speed 1/min: 400 electromagnet Volt: 12 : 41.00...83.00 Shutoff Overflow electromagnet Volt: 12
Del. quantity cm3/: 10.00...14.00
1000s.: (7.00...17.00)
Dispersion cm3/: 2.5
1000s.: (3.0)
2nd speed 1/min: 450 cm3/10s: (26.00...98.00) 1/min: 2300 quantity 2nd speed Shutoff electromagnet Volt: 12 Overflow : 55.00...139.00 cm3/10s: (40.00...153.00) quantity Shutoff electromagnet Volt: 12
Del. quantity cm3/: 0.00...6.00
1000S.: (0.00...8.50)
4th speed 1/min: 550 Delivery-quant. and breakaway char.: 4th speed Shutoff 1/min: 1500 1nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...2.50 1000s.: (0.00...2.50) electromagnet Volt: 12
Del. quantity cm3/: 28.30...29.30
1000s.: (26.50...31.10)
2nd speed 1/min: 2900 2nd speed Shutoff Load-dependent start of delivery: Inj.-qty.dif.measurement: electromagnet Volt: 12

mm: 1.6...2.0 MS 1st speed 1/min: 1500 1/min: 1500 Remarks: 2nd speed 1/min: 1500 3rd speed cm3/: 6.00...12.00 Inj.-qty. difference 1000S.: (6.00...12.00) Shutoff electromagnet Volt: 12 4th speed 1/min: 1500 5th speed 1/min: 1500 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1/min: 1500 1st speed : 0.70...0.90 TD-travel mm: (0.70...0.90) difference Shutoff electromagnet Volt: 12 2nd speed 1/min: 1500 1/min: 1500 3rd speed 1/min: 1500 4th speed SP press.—dif.measurement: pompa di mandata (FP): 1/min: 1500 1/min: 1500 1st speed 2nd speed 1/min: 1500 3rd speed 1/min: 1500 4th speed Automatic starting fuel delivery: 1/min: 300 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 48.00...74.00 1000s.: (48.00...74.00) 2nd speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...45.00 1000s.: (35.00...45.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 55.00...81.00 1000s.: (55.00...81.00) Shutoff electromagnet: Cut-in : 10.0 min voltage : 12 Rated voltage Mounting and assembly dimensions: Designation mm: 3.2...3.4 mm: 5.3...5.7 KF

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Note inst. in remarks column

: FIA 1,9 K2 Test scheet Edition : 06.12.91

replaces

Calibrating oil : ISO 4113

: VE4/8F2300R464 Injection pump : 0 460 484 052 Type number

Customer-specific information

: FIAT TIPO/TEMPRA Customer

: M 705 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina .

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Setting value mm: 5,9...6,3

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Setting value bar: 5,5...6,1 Shutoff electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1500 Speed

Del. quantity cm3/

1000s.: 30,5...31,5

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.:

Low-idle speed regulation

1/min: 390 Speed

Del. quantity cm3/

1000s.: 8,0...12,0

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2,5

1000s.: -

Full-load speed regulation

1/min: 2500 Speed

Del. quantity cm3/

1000s.: 20,0...26,0

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed Del. quantity cm3/: -1000s.: 37,0

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1500 Speed

cm3/Inj.-qty.

difference 1000s.: 6,0...12,0

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1500 1.Speed

TD-travel

mm: 1,0...1,2 * difference

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

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1st speed 1/min:	800	+	Shutoff
	1,72,5	1	electromagnet Volt: 12
	(1,42,8)	1	Del. quantity cm3/: 2,010,0
31000 1 de de company de 1 de 1 de 1	12	T	10005.: -
electromagnet Volt:	4500	T	
2nd speed 1/min:	1500	+	3rd speed 1/min: 2500
TD travel mm:	5,96,3	+	Shutoff
mm •	(5,46,8)	1	electromagnet Volt: 12
Shutoff	15/11.10/07	1	Del. quantity cm3/: 20,026,0
	43	T	10005.: (19,027,0)
electromagnet Volt:	12	1	
3rd speed 1/min:	2000	+	4th speed 1/min: 2300
TD travel mm:	8,69,4	+	Shutoff
mm:	(8,39,7)	4	electromagnet Volt: 12
Shutoff	(0)51117	1	Del. quantity cm3/: 31,333,7
	40		10005.: (30,234,8)
electromagnet Volt:	12	T	10005.1 (30/234/0/
4th speed 1/min:	2300	+	5th speed 1/min: 2000
TD travel mm:	9,410,2	+	Shutoff
mm •	(9,110,5)	1	electromagnet Volt: 12
Shutoff	(7)110/5/	Ĺ	Del. quantity cm3/: 30,833,2
	42	Ţ	4000c . (20 7 7/ 7)
electromagnet Volt:	12	1	1000s.: (29,734,3)
		+	6th speed 1/min: 1500
Supply-pump pressur	e characteristic:	+	Shutoff
cappey pants p. coca.	0 01101 00001 1001	1	electromagnet Volt: 12
1-t 1 1/	(00	1	Del. quantity cm3/: 30,531,5
1st speed 1/min:	000	T	10000 1007 77 7
Supply-pump		Ť	10005.: (28,733,3)
pressure bar:	2,93,5	+	7th speed 1/min: 600
Shutoff	- , , .	1	Shutoff
electromagnet Volt:	12	ı.	electromagnet Volt: 12
	4500	T	001 minutity on 7/2 7/5 7/5
2nd speed 1/min:	1500	+	Del. quantity cm3/: 31,534,5
Supply-pump		+	1000s.: (30,036,0)
pressure bar:	5,56,1	+	
Shutoff	-,,	1	Mech. shutoff:
al antennament Maite	12		THOUTH CHACGITY
electromagnet Volt:	12	T	mi
3rd speed 1/min:	2300	+	Electr. shutoff:
Supply-pump		+	
pressure bar:	7,78,3	4	1st speed 1/min: 390
Shutoff	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1	Del. quantity cm3/: 0,03,0
	43		10005.: -
electromagnet Volt:	12	+	
_		+	Shutoff
Overlow quantity at	: overflow valve:	+	electromagnet volt: -
•		+	
1st speed 1/min:	KAN	1	Idle delivery:
	000	<u> </u>	Tate detively.
Shutoff	40	T	1 1 /min 200
electromagnet Volt:	12	†	1st speed 1/min: 390
	41,683,3	t	Shutoff
quantity cm3/10s:		+	electromagnet Volt: 12
2nd speed 1/min:	2300	1	Del. quantity cm3/: 8.012.0
Shutoff		1	Del. quantity cm3/: 8,012,0 1000s.: (5,015,0)
	. 43	T	2nd amond 1/min: ///
electromagnet Volt:	12	†	2nd speed 1/min: 400
Overflow :	55,5138,8	+	Shutoff
quantity cm3/10s:	(40,5153,8)	+	electromagnet Volt: 12
	· • • • • • • • • • • • • • • • • • • •	+	Del. quantity cm3/: 0,03,0
Doliname-guant and	I brooks any chan	1	1000s.: -
Delivery quant. and	i Dicanaway Chal	T	10000.
		T	1
		+	Load-dependent start of delivery:
1nd speed 1/min	: 28 00	+	<pre>Injqty.dif.measurement:</pre>
Shutoff	- 	1	
		1	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
Alastanmanah Halt	. 10		ושורו יחירו (חובר באספר)
electromagnet Volt		T	1st speed 1/min: 1500
Del. quantity cm3/	: 0,01,6	Ŧ	Injqty. cm $3/$: $6,08,0$ #
Del. quantity cm3/ 1000s.	: 0,01,6 : -	Ŧ	Injqty. cm3/ : 6,08,0 # difference 1000s.: -
Del. quantity cm3/ 1000s.	: 0,01,6	T + +	Injqty. cm $3/$: $6,08,0$ #

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Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1500 Supply pump-: 0,1...0,3 pressure difference bar: -Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 300 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40,0...60.00 1000s.: -1/min: 400 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 33,00...43,00 1600s.: -Shutoff electromagnet: Cut-in : 19,0 min voltage Rated voltage : 12,0 Mounting and assembly dimensions: Designation mm: 3,2...3,4 mm: 5,3...5,7 mm: 1,3...1,7 mm: 17,0...19.0 KF MS XK mm: 10.5...13.9 Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

: PEU 1.9 K11 Test scheet : 13.04.92 Edition : 31.01.92 replaces : ISO-4113 Calibrating oil

: VE4/8F2300R425-1 Injection pump : 0 460 484 054 Type number

Customer Part-No. :

Customer-specific information

Customer : PSA

: XLID9AL - D70/N2/N3 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery

Indicator setting

Piston stroke mm: 0.3 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed

Setting value mm: 3.50...3.90

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250 Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1250 Speed

Del. quantity cm3/ 1000s.: 30.00...31.00

Shutoff

electromagnet Volt: 12 cm3/: 2.0 1000s.: (3.0) Dispersion

Residual-Delivery Setting

Speed 1/min: 500

Del. quantity cm3/

1000s.: 2.50...3.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2650 Speed

Del. quantity cm3/

1000s.: 9.00. .13.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 42.00...68.00 mind 1000s.: 42.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed hPa: 12 Charge press

Inj.-qty. cm3/

difference 1000s.: 2.00...8.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1250 1.Speed

TD-travel

mm: 2.00...3.00 difference

Shutoff

electromagnet Volt: 12 SP press.—dif.measurement

pompa di mandata (FP)

1/min: 1250 1.Speed

Supply pump Delivery-quant. and breakaway char.: pressure bar: 1.20...1.80 difference Shutoff 1/min: 2900 electromagnet Volt: 12 2nd speed Shutoff electromagnet Volt: 12
Del. quantity cm3/: 0.00...6.00
1000s.: (0.00...6.00)
5th speed 1/min: 2650 Inspection-pump test specifications Test specifications in parentheses 5th speed Timing-device characteristic: Shutoff electromagnet Volt: 12 1/min: 2000 2nd speed mm: 6.70...7.50 mm: (6.40...7.80) Del. quantity cm3/: 9.00...13.00 1000s.: (7.00...15.00) TD travel 1/min: 2500 8th speed Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Shutoff mm: 3.50...3.90 TD travel mm: (3.00...4.40) Shutoff electromagnet Volt: 12 4th speed 1/min: 800 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 32.50...34.50 10005.: (31.30...35.70) 4th speed mm: 1.20...2.00 TD travel mm: (0.90...2.30) 1/min: 1250 12th speed Shutoff Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: 1/min: 500 1st speed Shutoff Supply-pump electromagnet Volt: 12 Del. quantity cm3/: 30.00...33.00 1000s.: (28.50...34.50) bar: 3.30...3.90 pressure bar: (3.10...4.10) Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Mech. shutoff: 2nd speed Mech. Abstellung: Supply-pump bar: 5.70...6.30 pressure bar: (5.50...6.50) Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 12 3rd speed 1/min: 2200 Shutoff 3rd speed electromagnet volt: 12 Supply pump bar: 8.20...8.80 pressure bar: (8.00...9.00) Electr. shutoff: Shutoff electromagnet Volt: 12 1000s.: (0.00...3.00) Overlow quantity at overflow valve: Shutoff 1/min: 500 electromagnet volt: -1st speed Shutoff electromagnet Volt: 12 Damper set qty.: : 41.70...83.40 Overflow cm3/10s: (27.80...97.30) 1/min: 2200 LFG-setting: quantity solidale con carcassa: 2nd speed Idle delivery: Shutoff electromagnet Volt: 12 Overflow : 55.60...138.90 1/min: 375 1st speed cm3/10s: (41.70...152.90) Shutoff quantity

electromagnet Volt: 12 Del. quantity cm3/: 6.50...8.50 10005:: (3.50...11.50)

High Idle:

1/mi: 475 1st speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 8.50...10.50 1000s.: (5.50...13.50)

Residual:

1/min: 500 1.Rotacao

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 2.50...3.50

1000s.: (1.00...5.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 1st speed

Inj.-qty. cm3/ : 2.00...8.00

difference 1000S.: (2.00...8.00)

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV): 1st speed 1/min: 1250

: 2.00...3.00 TD-travel difference mm: (1.90...3.10)

Shutoff

electromagnet Volt: 12

SP press.—dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1250

Supply pump-

: 1.20...1.80 pressure

bar: (1.10...1.90) difference

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1/min: 225 1st speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 37.00...71.00 1000s.: (37.00...71.00)

1/min: 350 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 20.00...40.00

1000s.: (20.00...40.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 42.00...68.00 1000s.: (42.00...68.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.6...3.8

KF mm: KOT

mm: 1.2...1.6 MS

Remarks:

Overflow restriction 0.55 mm - Part No.

Note inst. in remarks column

: PEU 1.9 K13 Test scheet : 31.01.92 Edition

replaces

Calibrating oil : ISO-4113

: VE4/8F2300R425-2 Injection pump : 0 460 484 055 Type number

Customer Part-No. :

Customer-specific information

Customer : PSA

: XUD9A-N2 - BVA Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer: 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery

Indicator setting

Piston stroke mm: 0.3 Outlet

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed

Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 6.20...6.80

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1250

Del. quantity cm3/ 1000s.: 30.00...31.00

Shutoff

electromagnet Volt: 12 cm3/: 2.0 Dispersion 1000s.: (3.0)

Residual-Delivery Setting

1/min: 500 Speed

Del. quantity cm3/

1000s.: 2.50...3.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2650 Speed

Del. quantity cm3/

1000s.: 9.00...13.00

Shutoff

electromagn∈t Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 42.00...68.00

1000s.: 42.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed Charge press hPa: 12

Inj.—aty. cm3/ difference 1000s.: 2.00...8.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1250 1.Speed

TD-travel

difference mm: 1.50...2.70

Shutoff

electromagnet Volt: 12 SP press.-dif.measurement pompa di mandata (FP) 1. Speed 1/min: 1250

Supply pump Delivery-quant. and breakaway char.: pressure difference bar: 0.80...1.40 Shutoff 1/min: 2900 electromagnet Volt: 12 2nd speed Shutoff electromagnet Volt: 12 Inspection-pump test specifications Test specifications in parentheses Del. quantity cm3/: 0.00...6.00 1000s.: (0.00...6.00) 5th speed 1/min: 2650 Timing-device characteristic: Shutoff 1/min: 2000 mm: 7.50...8.30 2nd speed TD travel mm: (7.20...8.60) 8th speed Shutoff Shutoff electromagnet Volt: 12 1/min: 1250 mm: 3.40...3.80 mm: (2.90...4.30) electromagnet Volt: 12 3rd speed Del. quantity cm3/: 19.50...25.20 1000s.: (17.50...27.50) 9th speed 1/min: 2200 TD travel Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 32.50...34.50 1000s.: (31.30...35.70) 1/min: 800 4th speed mm: 1.00...1.80 TD travel mm: (0.70...2.10) 1/min: 1250 12th speed Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quyntity cm3/: 30.00...31.00 1000S.: (28.30...32.70) Supply pump pressure characteristic: 1/min: 500 1/min: 500 20th speed 1st speed Shutoff Supply-pump electromagnet Volt: 12 Del. quantity cm3/: 30.00...33.00 10005.: (28.50...34.50) bar: 4.40...5.00 pressure bar: (4.20...5.20) Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Mech. shutoff: Mech. Abstellung: Supply-pump bar: 6.20...6.80 pressure bar: (6.00...7.00) 1/min: 2200 1st speed Del. quantity cm3/: 0.00...3.00 Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 12 1/min: 2200 Shutoff 3rd speed electromagnet volt: 12 Supply-pump bar: 8.50...9.10 pressure bar: (8.30...9.30) Electr. shutoff: Shutoff 1/min: 375 electromagnet Volt: 12 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Overlow quantity at overflow valve: Shutoff 1/min: 500 electromagnet volt: -1st speed Shutoff electromagnet Volt: 12 Damper set qty.: : 41.70...83.40 Overflow cm3/10s: (27.80...97.30) LFG-setting: quantity 1/min: 2200 solidale con carcassa: 2nd speed Idle delivery: Shutoff electromagnet Volt: 12 1/min: 375 : 55.60...138.90 1st speed Overflow cm3/10s: (41.70...152.90) Shutoff quantity

electromagnet Volt: 12 Del. quantity cm3/: 6.50...8.50 1000S.: (3.50...11.50) High Idle: 1/mi: 475 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 8.50...10.50 1000s.: (5.50...13.50) Residual: 1/min: 500 1.Rotacao Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.50...3.50 1000s.: (1.00...5.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1250 1st speed : 2.00...8.00 Inj.-qty. cm3/ difference 1000S.: (2.00...8.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 TD-travel : 1.6J...2.6G mm: (1.50...2.70) difference Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1250 Supply pump-: 0.80...1.40 pressure bar: (0.70...1.50) difference Shutoff

electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 225 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.00...71.00 1000s.: (37.00...71.00) 1/min: 350 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 20.00...40.00 1000s.: (20.00...40.00)

1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.00...68.00 1000S.: (42.00...68.00)

Shutoff electromagnet:

Cut-in min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation mm: 3.6...3.8 KF mm: KOi mm: 1.2...1.6 MS

Remarks:

Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

: PEU Test scheet : 15.04.92 Edition

replaces

: ISO-4113 Calibrating oil

: VE4/8F2300R171-3 Injection pump : 0 460 484 056 Type number

Customer Part-No. :

Customer-specific information

: PSA Customer

: XUD7 L Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer: 49.00...48.00 Electronically: 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

bar: 130.00...133.00 Pressure

Test ini. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery

Indicator setting

Piston stroke mm: 0.3 Outlet : A

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed

Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 4.30...4.90

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1250 Speed

Del. quantity cm3/ 1000s.: 28.00...29.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.0 1000s.: (2.5)

Residual-Delivery Setting

1/min: 550

Del. quantity cm3/ 10COs.: 3.50...4.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2440 Speed

Del. quantity cm3/

1000s.: 19.00...25.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 42.00...82.00

1000s.: 42.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Ini.-qty.dif.measurement:

1/min: 1250 Speed

cm3/Inj.-aty.

difference 1000s.: 7.00...11.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV) 1.Speed 1/min: 1250

TD-travel

mm: 0.90...1.10 difference

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Del. quantity cm3/: 11.50...17.50 1000S.: (10.00...19.00) 5th speed 1/min: 2440 Timing-device characteristic: 1/min: 2000 mm: 7.20...8.00 mm: (6.90...8.30) 2nd speed Shutoff TD travel electromagnet Volt: 12
Del. quantity cm3/: 19.00...25.00
1000S.: (18.00...26.00)
9th speed 1/min: 2250 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 mm: 3.40...3.80 mm: (3.10...4.10) Shutoff TD travel Shutoff electromagnet Volt: 12 4th speed 1/min: 800 mm: 0.50...1.30 Shutoff TD travel mm: (0.20...1.60)Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff 1st speed 1/min: 800 Supply-pump bar: 3.00...3.60 pressure Shutoff Shutoff electromagnet Volt: 12
Del. quyntity cm3/: 28.00...29.00
1000S.: (26.20...30.80)
20th speed 1/min: 500 electromagnet Volt: 12 1/min: 1250 2nd speed Supply-pump bar: 4,30...4.90 pressure Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 28.00...31.00 1000S.: (26.50...32.50) electromagnet Volt: 12 3rd speed 1/min: 2000 3rd speed Supply-pump bar: 6.40...7.00 pressure Mech. shutoff: Shutoff Mech. Abstellung: electromagnet Volt: 12 1st speed 1/min: 2250
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00) Overlow quantity at overflow valve: 1/min: 500 1st speed Shutoff Shutoff electromagnet volt: 12 electromagnet Volt: 12 : 41.70...83.40 Overflow cm3/10s: (26.70...98.40) 1/min: 2250 Electr. shutoff: quantity 2nd speed Shutoff electromagnet Volt: 12 : 55.60...139.00 Overflow cm3/10s: (40.60...153.00) Shutoff quantity electromagnet volt: -Delivery—quant. and breakaway char.: Damper set qty.: 2nd speed 1/min: 2690 LFG-setting: solidale con carcassa: Shutoff Idle delivery: 1/min: 375 1st speed Shutoff 3rd speed electromagnet Volt: 12 Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 44.00...84.00 1000s.: (34.00...74.00) Del. quantity cm3/: 8.00...12.00 1000s.: (6.00...14.00) 1/min: 300 2nd speed High Idle: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 14.00...34.00 1000s.: (44.00...64.00) 1st speed 1/mi: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 8.00...12.00 1000s.: (6.00...14.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.00...82.00 1000S.: (42.00...82.00) Residual: 1/min: 550 1.Rotacao Shutoff Shutoff electromagnet: electromagnet Volt: 12 Del. quantity cm3/: 3.50...4.50 1000s.: (2.50...5.50) Cư:-in min voltage : 10.0 Rated voltage : 12.0 Load-dependent start of delivery: Inj.-qty.dif.measurement: Mounting and assembly dimensions: 1/min: 1250 1st speed Inj.-qty. cm3/ : 7.00...11.00# Designation mm: 3.2...3.4 mm: 5.3...5.7 difference 1000s.: (4.00...14.00) K KF Shutoff mm: 1.2...1.6 MS electromagnet Volt: 12 1/min: 1250 3rd speed cm3/: +2.00...8.00* Remarks: Inj.-qty. difference 1000s.: +(2.00...8.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 TD-travel : 0.90...1.10 # mm: (0.90...1.10) difference Shutoff electromagnet Volt: 12 1/min: 1250 : 1.00...2.00_* 3rd speed TD-travel mm: (0.90...2.10)difference Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1/min: 1250 1st speed Supply pump-: 0.50...1.10 * pressure bar: (0.40...1.20) difference Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 200

Shutoff

electromagnet Volt: 12

Note inst. in remarks column

Test scheet : VMA : 09.04.92 Edition : 01.85 replaces Calibrating oil : ISO 4113

Injection pump : VE4/9F2150L31-1 : 0 460 494 133 Type number

Customer-specific information : MOTORI VM Customer

: HR 488 HT Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically: 42.00...50.00

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 688 901 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1900 Speed Charge press. hPa: 800

Setting value mm: 6,40...6,80

Shutoff

electromagnet Volt: 12.0

Supply-pump pressure

1/min: 1900 Speed Charge press hPa: 800

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1600 Charge press. hPa: 800

Del. quantity cm3/ 1000s.: 46.50...47.50

Shutoff electromagnet Volt: 12.0 Dispersion cm3/: 3,0 1000s.: -

Full-load del. w/out charge press.:

1/min: 600

Del. quantity cm3/ 1000s.: 31.50...32.50

Shutoff

electromagnet Volt: 12.0

Low-idle speed regulation

1/min: 400 Speed Charge press hPa: -Del. quantity cm3/ 1000s.: 8.00...12.00

Shutoff

electromagnet Volt: 12.0 Del. quantity cm3/: 3.0 1000s.: -

Full-load speed regulation

1/min: 2300 Charge press hPa: 800 Del. quantity cm3/

1000s.: 27.50...33.50

Shutoff

electromagnet Volt: 12.0

Start:

1/min: 100 Speed Charge press hPa: -Del. quantity cm3/: mind 1000s.: 44.0 Shutoff

electromagnet Volt: 12.0

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1000 1st speed Charge press hPa: 800

TD travel mm: 1.302.10	+ Shutoff
mm: (1.002.40)	+ electromagnet Volt: 12.0
electromagnet Volt: 12.0	Del. quantity cm3/: 39.3041.30
2nd speed 1/min: 1903	10005.: (37.6042.00)
Charge press hPa: 800	2nd speed 1/min: 2600
TD travel mm: 6.406.80 mm: (5.907.30)	+ Charge press. hPa: 800
m: (5,907.50)	+ Shutoff
Shutoff	+ electromagnet Volt: 12.0 + Del. quantity cm3/: 0.02.0
electromagnet Volt: 12.0 3rd speed 1/min: 2150	1000s.: -
Charge press hPa: 800	I 3rd speed 1/min: 2450
TD travel mm: 7.508.30	+ Charge press. hPa: 800
mm: (7.208.60)	+ Shutoff
Shutoff	+ electromagnet Volt: 12.0
electromagnet Volt: 12.0	+ Del. quantity cm3/: 0.010.0
	+ 1000S.: -
Supply-pump pressure characteristic:	+ 4th speed 1/min: 2300
	+ Charge press. hPa: 800
1st speed 1/min: 400	+ Shutoff
Charge press. hPa: 800	+ electromagnet Volt: 12.0
Supply-pump	bel. quantity cm3/: 27.5033.50 1000s.: (26.5034.50)
pressure bar: 2.002.60	1 111111111111111
Shutoff	+ 5th speed 1/min: 2150 + Charge press. hPa: 800
electromagnet Volt: 12.0 2nd speed 1/min: 1900	Shutoff
Charge press. hPa: 800	electromagnet Volt: 12.0
Supply-pump	+ Del. quantity cm3/: 40.0043.00
pressure bar: 5.706.30	10008.: (39.243.80)
Shutoff	+ 6th speed 1/min: 1600
electromagnet Volt: 12.0	+ Charge press. hPa: 800
3rd speed 1/min: 2150	+ Shutoff
Charge press. hPa: 800	+ electromagnet Volt: 12.0
Supply-pump	Del. quantity cm3/: 46.5047.50
pressure bar: 6.306.90	1000s.: (44.7049.30)
Shutoff	+ 7th speed 1/min: 600
electromagnet Volt: 12.0	Charge press. hPa: 270 Shutoff
Cumpley supportative at expention valves	electromagnet Volt: 12.0
Overlow quantity at overflow valve:	Del. quantity cm3/: 39.3041.30
1st speed 1/min: 600	1000\$.: (37.6042.00)
Charge press. hPa: -	+ 8th speed 1/min: 600
Shutoff	- Charge press. hPa: -
electromagnet Volt: 12.0	+ Shutoff
Overflow : 42.0083.00	+ electromagnet Volt: 12.0
quantity cm3/10s: (27.0098.00)	- Del. quantity cm3/: 31.5032.50
2nd speed 1/min: 2150	1000s.: (29.8034.20
Charge press. hPa: 800	t Mark aboutable.
Shutoff	- Mech. shutoff:
electromagnet Volt: 12.0 Overflow : 55.00138.00	Idle delivery:
quantity cm3/10s: (40.00153.00)	Tute decivery.
quantity unorthos. (40.00155,00)	1st speed 1/min: 400
Delivery quant. and breakaway char.:	+ Shutoff
DESCRETE AMERICA CONTRACTOR OF	+ electromagnet Volt: 12.0
	Del. quantity cm3/: 8.0012.0 1000s.: (6.0014.00)
1nd speed 1/min: 600	
Charge-air pressure-setting	Dispersion cm3/: 3.0
point hPa: 270	10005.: -
I NA-ctroko mm: 3 8	1 2nd speed 1/min: 500

Shutoff electromagnet Volt: 12.0 Del. quantity cm3/: 0.0...6.00 1000s.: -1/min: 800 3rd speed Shutoff electromagnet Volt: 12.0 Del. quantity cm3/: 0.0...2.0 1000s.: -Automatic starting fuel delivery: 1/min: 350 1st speed Shutoff electromagnet Volt: 12.0 Del. quantity cm3/: 44.00... 1000s.: -

1/min: 450 2nd speed

Shutoff

electromagnet Volt: 12.0 Del. quantity cm3/: 0.0...43.0 1000s.: -

Shutoff electromagnet:

Cut-in

: 10.0 min voltage : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3.3 mm: 5.7...5.9 mm: 0.7...0.9 K KF MS mm: 5.6 mm: 3.8 mm: 20.2...22.2 mm: 8.7...12.1 SVS max. LDA stroke XK

XL

Remarks:

Note inst. in remarks column

Test scheet Edition : 13.04.92

replaces

Calibrating oil : ISO-4113

: VE4/9F2200R416 Injection pump : 0 460 494 273 Type number

Customer Part-No. :

Customer-specific information Customer

: J8S - 890Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer: 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 043

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery

Prestroke mm: 0.2

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 0.3

mm: +-0.02(0.06)

Outlet

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1400 Charge press. hPa: 800

Setting value mm: 4.00...4.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1400 Speed Charge press hPa: 800

Setting value bar: 5.10...5.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1400 Speed Charge press. hPa: 800

Del. quantity cm3/ 1000s.: 47.20...48.20

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/ 1000s.: 37.00...38.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 425 Speed

Del. quantity cm3/ 1000s.: 7.00...11.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Full-load speed regulation

1/min: 2400 Speed Charge press hPa: 800 Del. quantity cm3/

1000s.: 23.00...29.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 60.00...100.00 mind 1000s.: 60.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

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	4/1 2000
was to the term of the second sections.	+ 2nd speed 1/min: 2000
Timing-device characteristic:	+ Charge press. hPa: 800 + Shutoff
2nd speed 1/min: 2000	electromagnet Volt: 12
Charge press hPa: 800	+ Overflow : 55.60139.00
TD travel mm: 6.207.00	+ quantity cm3/10s: (40.60153.00)
mm: (6.207.00)	+
Shutoff	† Delivery-quant. and breakaway char.:
electromagnet Volt: 12	+
3rd speed 1/min: 1400	1 And annual 4 (min 2004)
Charge press hPa: 800	+ 1nd speed 1/min: 700*
TD travel mm: 4.004.40 mm: (3.504.90)	+ Charge-air pressure-setting + point hPa: 200
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
4th speed 1/min: 1000	<pre>1 Del. quantity cm3/: 41.0042.00</pre>
Charge press hPa: 800	1000S.: (38.5044.50)
TD travel mm: 1.902.70	+ 2nd speed 1/min: 2700
mm: (1.603.00)	+ Charge press. hPa: 800
Shutoff	† Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
6th speed 1/min: 1800	Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
Charge press. hPa: 800 TD travel mm: 5.706.50	4 3rd speed 1/min: 2500
TD travel mm: 5.706.50 mm: (5.406.80)	+ Charge press. hPa: 800
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
ecoor anagree vote. Te	4 Del. quantity cm3/: 2.5017.50
Supply-pump pressure characteristic:	+ 1000S.: (2.5017.50)
	- 5th speed 1/min: 2400
1st speed 1/min: 600	Charge press. hPa: 800
Charge press. hPa: -	+ Shutoff
Supply-pump	electromagnet Volt: 12
pressure bar: 2.603.20 bar: (2.303.50)	Del. quantity cm3/: 23.0029.00 1000s.: (22.0030.00)
Shutoff	9th speed 1/min: 2000
electromagnet Volt: 12	+ Charge press. hPa: 800
2nd speed 1/min: 1400	+ Shutoff
Charge press. hPa: 800	+ electromagnet Volt: 12
Supply-pump	+ Del. quantity cm3/: 44.1045.10
pressure bar: 5.105.70	-}- 1000\$.: (42.8047.40)
bar: (4.806.00)	12th speed 1/min: 1400
Shutoff	+ Charge press. hPa: 800
electromagnet Volt: 12	+ Shutoff
3rd speed 1/min: 2000	electromagnet Volt: 12 Del. quyntity cm3/: 47.2048.20
Charge press. hPa: 800	1000s.: (45.4050.00)
Supply-pump pressure bar: 6.907.50	18th speed 1/min: 600
bar: (6.607.80)	Charge press. hPa: -
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
	Del. quantity cm3/: 37.0038.00
Overlow quantity at overflow valve:	1000s.: (34.5040.50)
A	+ 20th speed 1/min: 1000
1st speed 1/min: 600	+ Charge press. hPa: 800 + Shutoff
Charge press. hPa: -	+ electromagnet Volt: 12
Shutoff electromagnet Volt: 12	Del. quantity cm3/: 45.6048.60
Overflow : 41.7083.40	10008:: (44.1050.10)
quantity cm3/10s: (26.7098.40)	+
Administration and the second	1

mm: 5.6...6.0 Mech. shutoff: KF mm: 1.3...1.7 MS mm: 4.8 SVS max. Electr. shutoff: Remarks: 1/min: 425 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet viit: -Idle delivery: 1/min: 425 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...11.00 1000s.: (5.00...13.00) cm3/: 2.5 Dispersion 10005.: (3.0) 1/min: 550 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 450 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.00...7.00 1000s.: (1.00...9.00) Automatic starting fuel delivery: 1/min: 180 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...100.00 1000s.: (40.00...100.00) 1/min: 300 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 20.00...40.00 1000s.: (20.00...40.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 60.00...100.00 1000s.: (60.00...100.00) Shutoff electromagnet: Cut-in : 10.0 min voltage : 12.0 Rated voltage Mounting and assembly dimensions: Designation

mm: 3.2...3.4

:

J24

Κ

Note inst. in remarks column

Test scheet

: 13.04.92 Edition : 04.12.91 replaces : ISO-4113 Calibrating oil

: VE4/9F2250R445 Injection pump : 0 460 494 278 Type number

Customer Part-No. :

Customer specific information

Customer : PSA

: XUD 9 TE-L (Cit. Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 42.00...48.00 Electronically : 40.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Openina .

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed Charge press. hPa: 1000

Setting value mm: 3.80...4.20

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Charge press hPa: 1000 Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Speed Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 53.50...54.50

Shutoff

electromagnet Volt: 12 cm3/: 2.0 Dispersion 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 37.50...38.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 400 Charge press hPa: -Del. quantity cm3/

1000s.: 12,0...14.0

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2,0 1000s.: (3,0)

Residual-Delivery Setting

1/min: 500 Speed

Del. quantity cm3/

1000s.: 6.00...7.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2575 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 12.00...16.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 200 Del. quantity cm3/: 50.00...56.00

1000s.: 50.00

1/min: 2000 3rd speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 Supply-pump bar: 7.30...7.90 pressure Load-dependent start of delivery: Shutoff Inj.-qty.dif.measurement: electromagnet Volt: 12 1/min: 1250 Speed Overlow quantity at overflow valve: Charge press hPa: -Inj.—qty. cm3/difference 1000s.: 11.00...15.00 # 1/min: 500 1st speed Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 TD-travel dif.measurement Shutoff : 41.70...83.40 quantity cm3/10s: (26.70...98.40) 2nd speed 1/min: 2150 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 correttore anticipo iniezione (SV) 1.Speed 1/min: 1250 Charge press hPa: -TD-travel difference mm: 0.90...1.10 # electromagnet Volt: 12 Shutoff. : 55.60...139.00 Overflow electromagnet Volt: 12 cm3/10s: (40.60...154.00) quantity Inspection pump test specifications Delivery-quant. and breakaway char.: Test specifications in parentheses Timing-device characteristic: 1/min: 750 1nd speed Charge-air pressure-setting point hPa: 350 LDA-stroke mm: 5.8 2nd speed 1/min: 2000 hPa: 1000 Charge press mm: 6.40...7.20 mm: (6.10...7.50) LDA-stroke TD travel Shutoff electromagnet Volt: 12 Shutoff Del. quantity cm3/: 46.00...47.00 1000s.: (43.50...49.50) electromagnet Volt: 12 1/min: 1250 3rd speed hPa: 1000 mm: 3.80...4.20 mm: (3.30...4.70) 1/min: 2750 2nd speed Charge press Charge press. hPa: 1000 Shutoff TD travel electromagnet Volt: 12 Del. quantity cm3/: 0.00...6.00 1000s.: -Shutoff electromagnet Volt: 12 1/min: 750 4th speed 1/min: 2575 5th speed Charge press hPa: 1000 Charge press. hPa: 1000 Shutoff mm: 1.50...2.30 TD travel mm: (1.20...2.60) electromagnet Volt: 12 Del. quantity cm3/: 12.00...16.00 Shutoff electromagnet Volt: 12 1000s.: (10.00...18.00) 1/min: 2375 Supply-pump pressure characteristic: 8th speed Charge press. hPa: 1000 Shutoff 1/min: 750 1st speed electromagned Volt: 12
Del. quantity cm3/: 33.00...43.00
1000S.: (32.00...44.00)
9th speed 1/min: 2150 Charge press. hPa: 1000 Supply-pump bar: 4.40...5.00 pressure Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 49.50...51.50 1000s.: (48.30...52.70) Charge press. hPa: 1000 Supply-pump bar: 5.60...6.20 pressure 1/min: 2000 10th speed bar: -Charge press. hPa: 1000 Shutoff

electromagnet Volt: 12

Shutoff	bel. quantity cm3/: 12.0014.00
electromagnet Volt: 12	† 1000s.: (9.0017.00)
Del. quantity cm3/: 51.0053.00	+ 11° nt - 7'dl - 0
1000s.: (49.8054.20)	+ High Idle:
12th speed 1/min: 1250	1/-: 500
Charge press. hPa: 1000	1 1st speed 1/mi: 500
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
Del. quyntity cm3/: 53.5054.50	+ Del. quantity cm3/: 11.0013.00
1000\$.: (51,8056,20)	10005.: (8.0016.06)
18th speed 1/min: 500	+
Charge press. hPa: -	+ Residual:
Shutoff	† 4 a
electromagnet Volt: 12	1.Rotação 1/min: 500
Del. quantity cm3/: 37.5038.50	+ Shutoff
1000s.: (35.0041.00)	+ electromagnet Volt: 12
20th speed 1/min: 500	+ Del. quantity cm3/: 6.007.00
Charge press. hPa: 1000	1000s.: (4.508.50)
Shutoff	
electromagnet Volt: 12	+ Load-dependent start of delivery:
Del. quantity cm3/: 46.5049.50	+ Injqty.dif.measurement:
1000s.: (46.0051.00)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	1 1st speed 1/min: 1250
Mech. shutoff:	+ Charge press. hPa: -
Mech. Abstellung:	Injqty. cm3/ : 2.008.00
	+ difference 1000s.: -
1st speed 1/min: 2000	+ Shutoff
Del. quantity cm3/: 0.003.00	+ electromagnet Volt: 12
1000s.: -	+
Shutoff	+ TD-travel dif.measurement:
electromagnet volt: 12	+ correttore anticipo iniezione (SV):
KSB/AFB	+ 1st speed 1/min: 1250
valve Volt: -	+ Charge press. hPa: -
	+ TD-travel : 2.102.50 '
Electr. shutoff:	+ difference mm: (1,603.00) '
	+ Shutoff
1st speed 1/min: 400	+ electromagnet Volt: 12
Del. quantity cm3/: 0.003.00	4
1000s.: -	+ SP pressdif.measurement:
Shutoff	pompa di mandata (FP):
electromagnet volt: -	1st speed 1/min: 1250
	+ Charge press. hPa: -
Idle delivery:	4- Supply punio-
	+ pressure : 0,91.30 '
	+ difference bar: (0,71,50) '
Damper set qty.:	+ Shutoff
e emigran i ara ara di ∉ini	+ electromagnet Volt: 12
1st speed 1/min: 600	+
Shutoff	Automatic starting fuel delivery:
	+
electromagnet Volt: 12 Del. quantity cm3/: 27.0035.00	+
1000s.: -	+ 2nd speed 1/min: 380
	+ Charge press. hPa: -
LFG-setting:	+ Shutoff
solidale con carcassa:	+ electromagnet Volt: 12
Idle delivery:	<pre>Del. quantity cm3/: 25.0045.00</pre>
	1000s.: -
1st speed 1/min: 400	+
Shutoff	4 3rd speed 1/min: 150
electromagnet Volt: 12	+ Charge press. hPa: -

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 37.00...67.00 1000s.: -

4th speed 1/min: 200 Charge press. hPa: -Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 50.00...56.00 1000s.: -

Shutoff electromagnet:

Cut-in

0,01: min voltage Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3,2...3,4 K KF mm: K-OT mm: 5.8 LDA stroke

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

Test scheet : VWW : 14.04.92 Edition : 07.02.92 replaces : ISO-4113 Calibrating oil

: VE4/9F2300R432 Injection pump : 0 460 494 284 Type number

Customer Part-No. :

Customer-specific information

Customer

: 1.9L. UATL - B3 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Openina

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Indicator setting Piston stroke mm: 1.0 Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed Setting value mm: 3.70...4.10

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 5.50...6.10

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1250 Speed

Del. quantity cm3/ 1000s.: 42.00...43.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Low-idle speed regulation

1/min: 450 Speed Del. quantity cm3/

1000s.: 9.0...11.0

Shutoff

electromagnet Volt: 12.0 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 575

Del. quantity cm3/ 1000s.: 5.50...6.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2600

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 35.00...65.00 mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed

cm3/ Inj.-qty.

difference 1000s.: 4.00...10.00 *

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

K01

1/min: 2750 1/min: 1250 2nd speed 1. Speed TD-travel difference Shutoff electromagnet Volt: 12 mm: 0.60...0.80 *Del. quantity cm3/: 0.00...6.00 1000s.: (0.00...6.00) 5th speed 1/min: 2600 Shutoff electromagnet Volt: 12 Inspection-pump test specifications Test specifications in parentheses Shutoff Timing-device characteristic: 8th speed Shutoff 1/min: 2000 1st speed TD travel mm: 6.50...7.30 mm: (6.20...7.60) electromagnet Volt: 12 2nd speed 1/min: 1250 mm: 3.50...3.90 mm: (3.00...4.40) 9th speed Shutoff Shutoff electromagnet Volt: 12 1/min: 750 3rd speed Shutoff TD travel mm: 1.40...2.20 mm: (1.10...2.50) Shutoff electromagnet Volt: 12 Shutoff Supply-pump pressure characteristic: 1/min: 750 1st speed Supply-pump bar: 4.30...4.90 pressure Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.50...41.50 1000s.: (33.00...44.00) electromagnet Volt: 12 2nd speed 1/min: 1250 Supply-pump bar: 5.50...6.10 pressure Mech. shutoff: Shutoff electromagnet Volt: 12 3rd speed 1/min: 2200 3rd speed Electr. shutoff: Supply-pump bar: 7.70...8.30 1st speed 1/min: 450 pressure Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) Shutoff electromagnet Volt: 12 Shutoff Overlow quantity at overflow valve: electromagnet volt: -1/min: 400 Idle delivery: 1st speed Shutoff electromagnet Volt: 12 Overflow : 41.70...83.40 Damper set qty.: cm3/10s: (26.80...98.30) 1/min: 2200 quantity 1/min: 1000 2nd speed 2nd speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.00...13.00 1000s.: (8.00...16.00) electromagnet Volt: 12 Overflow : 55.60...138.90 cm3/10s: (40.60...153.90) quantity LFG-setting: Delivery quant. and breakaway char.: solidale con carcassa: Idle delivery:

1/min: 450 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.00...11.00 1000s.: (6.00...14.00) High Idle: 1/mi: 525 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.00...11.00 1000S.: (6.00...14.00) Residual: 1/min: 575 1.Rotacao Shutoff electromagnet Volt: 12 Del. quantity cm3/: 5.50...6.50 1000s.: (4.00...8.00) 1/min: 525 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.30...9.30 1000s.: (5.80...10.80) Load dependent start of delivery: Inj. -qty.dif.measurement: 1/min: 1250 1st speed Inj.-qty. cm3/ : +0.0...3.00 # difference 1000s.: -Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 : 1.10...1.50 # TD-travel difference mm: (0.90...1.70) Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1/min: 1250 1st speed Supply pump-: 1.80...2.20 # pressure bar: (1.50...2.50) difference Shutoff electromagnet Volt: 12 Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set) scarico) (ARF)

electromagnet Volt: 12 Del. quantity cm3/: 27.00...29.00 10COS.: (25.00...31.00) Automatic starting fuel delivery: 1/min: 180 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...75.00 1000s.: -1/min: 380 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.00...50.00 1000s.: -1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...65.00 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: 3.2...3.4 KF nm: 5.1...5.5 mm: 1.1...1.5 MS Remarks: On initial measurement, screw in residual-quantity adjusting screw 2 mm. Following pump adjustment, screw out residual quantity adjusting screw 2 mm.

1/min: 1000

1st speed

Shutoff

gaz d'échappement-ARF)

Note inst. in remarks column

Test scheet

: 14.04.92 Edition

replaces

Calibrating oil : ISO-4113

: VE4/9F2300R432-4 Injection pump

: 0 460 494 285 Type number

Customer Part-No. :

Customer-specific information

Customer

: 028.b (1.9L.) B3 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return teno.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Openina

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed

Setting value mm: 3.70...4.10

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 5.50...6.10

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1250 Speed

Del. quantity cm3/ 1000s.: 42.00...43.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Residual-Delivery Setting

1/min: 575

Del. quantity cm3/

1000s.: 5.50...6.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2600 Speed

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 35.00...65.00

mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed

cm3/ Inj.~qty.

difference 1000S.: 4.00...10.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1250 1.Speed

TD-travel

difference mm: 0.60...0.80

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

1/min: 2000 2nd speed

mm: 6.60...7.40 TD travel

mm: (6.30...7.70)

Shutoff	+ Del. quantity cm3/: 21.5031.50
electromagnet Volt: 12	1000s.: (20.5032.50)
3rd speed	+ 9th speed 1/min: 2200
TD travel mm: 3.704.10	+ Shutoff
mm: (3.204.60)	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 36.7038.70
electromagnet Volt: 12	1000s.: (35.5039.90)
4th speed 1/min: 750	† 12th speed 1/min: 1250
TD travel mm: 1.602.40	+ Shutoff
mm: (1.302.70)	+ electromagnet Volt: 12
Shutoff	bel. quyntity cm3/: 42.0043.00
electromagnet Volt: 12	+ 1000S.: (40.3044.70)
	15th speed 1/min: 750
Supply-pump pressure characteristic:	+ Shutoff
	+ electromagnet Volt: 12
1st speed 1/min: 750	4 Del. quantity cm3/: 33.7036.70
Supply-pump	1000s.: (32.2038.20)
pressure bar: 4.304.90	+ 20th speed 1/min: 400
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
2nd speed 1/min: 1250	+ Del. quantity cm3/: 35.5041.50
Supply-pump	1000s.: (33.0044.00)
pressure bar: 5.506.10	+
Shutoff	+ Mech. shutoff:
electromagnet Volt: 12	+
3rd speed 1/min: 2200	+ Electr. shutoff:
Supply-pump	+
pressure bar: 7.708.30	1 1st speed 1/min: 450
Shutoff	+ Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	1000s.: (0.003.00)
	1 Shutoff
Overlow quantity at overflow valve:	+ electromagnet volt:
	+
1st speed 1/min: 400	→ Idle delivery:
Shutoff	<u>'</u>
electromagnet Volt: 12	+
Overflow : 41.7083.40	↓ Damper set qty.:
quantity cm3/10s: (27.8097.30)	+
2nd speed 1/min: 2200	+ 2nd speed 1/min: 1000
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
Overflow : 55.60138.90	Del. quantity cm3/: 11.0013.00
quantity cm3/10s: (41.70152.90)	1000s.: (8.0016.00)
	+
Delivery-quant. and breakaway char.:	<pre>LFG-setting:</pre>
	+ solidale con carcassa:
	† Idle delivery:
2nd speed 1/min: 2750	+
Shutoff	+ 1st speed 1/min: 450
electromagnet Volt: 12	+ Shutoff
Del. quantity cm3/: 0.006.00	+ electromagnet Volt: 12
1000s.: (0.006.00)	+ Del. quantity cm3/: 9.0011.00
5th speed 1/min: 2600	1000s.: (6.0014.00)
Shutoff	†
electromagnet Volt: 12	+ High Idle:
Del. quantity cm3/: 10.0014.00	† . · · · · · · · · · · · · · · · · · ·
1000S.: (8.0016.00)	+ 1st speed 1/mi: 500
8th speed 1/min: 2500	+ Shutoff
Shutoff	† electromagnet Volt: 12
electromagnet Volt: 12	+
-	

Del. quantity cm3/: 9.00...11.00 10005:: (6.00...14.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 27.00...29.00 1000s.: (25.00...31.00) Residual: Automatic starting fuel delivery: 1/min: 575 1.Rotacao Shutoff 1/min: 180 1st speed electromagnet Volt: 12 Del. quantity cm3/: 5.50...6.50 1000s.: (4.00...8.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...75.00 1000s.: (35.00...75.00) 1/min: 525 2rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.30...9.30 1000S.: (5.80...10.80) 1/min: 380 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.00...50.00 1000s.: (30.00...50.00) Load-dependent start of delivery: Ini.-aty.dif.measurement: 1/min: 100 4th speed 1/min: 1250 1st speed Inj.-qty. cm3/ : 4.00...10.00# difference 1000S:: (3.00...11.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...65.00 1000s.: (35.00...65.00) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Inj.-qty. cm3/: +0.00...3.00* Shutoff electromagnet: difference 1000S:: +(0.00...3.00) Cut-in Shutoff electromagnet Volt: 12 min voltage : 10.0 Rated voltage : 12.0 TD-travel dif.measurement: Mounting and assembly dimensions: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 TD-travel : 0.60...0.80 # Designation mm: 3.2...3.4 difference mm: (0.60...0.80)KF mm: 5.1...5.5 Shutoff mm: 1.1...1.5 MS electromagnet Volt: 12 SVS max. mm: 2.9 3rd speed 1/min: 1250 : 1.80...2.20 * TD-travel mm: (1.50...2.50) On initial measurement, screw in difference residual-quantity adjusting screw 2 mm. Shutoff electromagnet Volt: 12 Following pump adjustment, screw out residual-quantity adjusting screw 2 mm. SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1250 Supply pump-: 1.10...1.50 * pressure bar: (0.90...1.70) difference Shutoff electromagnet Volt: 12 Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF)

1st speed

1/min: 1000

Note inst. in remarks column

Test scheet : 15.04.92 Edition

replaces Calibrating oil : ISO-4113

Injection pump : VE4/9F2050R442 Type number : 0 460 494 292

Customer Part-No. :

Customer-specific information : IVECO-SOFIM Customer

; 8144.97.2400 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 683 901 000 assembly

Opening |

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Indicator setting Piston stroke mm: 1.0 Outlet : A

Injection pump setting values Test specifications in parentheses

Timing device travel

1/min: 1000 Speed Charge press. hPa: 1000 Setting value mm: 2.00...2.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1000 Speed Charge press hPa: 1000

Setting value bar: 4.70...5.30

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 12 cm3/: 3.0Dispersion 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 40.00...41.00

Shutoff

electromagnet Volt: 12

Residual-Delivery Setting

1/min: 550 Speed

Del. quantity cm3/ 1000s.: 1.00...5.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2400 Speed Charge press hPa: 1000 Del. quantity cm3/ 1000s.: 31.00...37.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 50.00...74.00 mind 1000s.: 50.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1000 Speed Charge press hPa: 1000

cm3/Inj.-qty.

difference 1000S.: 19.00...25.00

K07

Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
TD-travel dif.measurement	
correttore anticipo iniezione (SV)	Overlow quantity at overflow valve:
1. Speed 1/min: 1000	,
Charge press hPa: 1000	1st speed 1/min: 500
TD-travel +	Shutoff
difference mm: 0.700.90	electromagnet Volt: 12
Shutoff	Overflow : 41.7083.40
electromagnet Volt: 12	quantity cm3/10s: (26.7098.40)
ecectionagnet voct. 12	2nd speed 1/min: 2050
Inspection-pump test specifications	Charge press. hPa: 1000
Test specifications in parentheses	Shutoff
rest specifications in parentheses	electromagnet Volt: 12
Timing device characteristic:	Overflow : 55.60139.00
Timing-device characteristic:	quantity cm3/10s: (40.60153.00)
Just 2000	quarterly distributions. (40.0011.1751.00)
2nd speed 1/min: 1800 +	Delayers much and brooks in chan
Charge press hPa: 1000 +	Delivery-quant. and breakaway char.:
TD travel mm: 8.008.80	
mm: (7.709.10)	dual analysis of facilities 700 to
Shutoff	1nd speed 1/min: 700*
electromagnet Volt: 12	Charge-air pressure-setting
3rd speed 1/min: 1000 +	point hPa: 350
Charge press hPa: 1000 +	LDA-stroke mm: 4.5
TD travel mm: 2.002.40	Shutoff
mm: (1.702.70)	electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 54.5055.50
electromagnet Volt: 12	Del. quantity cm3/: 54.5055.50 1000s.: (52.5057.50) 2nd speed 1/min: 2750
5th speed 1/min: 2050 +	2nd speed 1/min: 2750
Charge press. hPa: 1000	Charge press. hPa: 1000
TD travel mm: 9.6010.40	· Shutoff
rm; (9.3010.70)	electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	1000s.: (0.003.00)
6th speed 1/min: 1400	- 5th speed 1/min: 2400
Charge press. hPa: 1000	Charge press. hPa: 1000
TD travel mm: 4.805.60	- Shutoff
mm: (4.505.90)	electromagnet Volt: 12
Shutoff	electromagnet Volt: 12 Del. quantity cm3/: 31.0037.00
electromagnet Volt: 12	10008.: (30.0038.00)
etectromagnet volt. 12	- 9th speed 1/min: 2050
Complete numer properties shapestonicties	- Charge press. hPa: 1000
Supply-pump pressure characteristic:	- Shutoff
1-h 1 1/min. 700	electromagnet Volt: 12
1st speed 1/min: 700	- Del. quantity cm3/: 62.0065.00
Charge press. hPa: 1000	- 1000s.: (61.3065.70)
Supply-pump 7 50 / 40	
pressure bar: 3.504.10	
Shutoff	- Charge press. hPa: 1000
electromagnet Volt: 12	- Shutoff
2nd speed 1/min: 1000	- electromagnet Volt: 12
Charge press. hPa: 1000	- Del. quyntity cm3/: 63.5064.50
Supply-pump +	1000\$.: (62.0066.00)
pressure bar: 4.705.30	- 18th speed 1/min: 500
Shutoff	- Shutoff
electromagnet Volt: 12	- electromagnet Volt: 12
3rd speed 1/min: 2050	- Del. quantity cm3/: 40.0041.00
Charge press. hPa: 1000	- 1000s.: (38.0043.00)
Supply-pump t	
procesure hart 8 40 9 00	- Mech. shutoff:

Electr. shutoff: 1st speed	+ 1st speed 1/min: 1000 + Charge press. hPa: 1000 + TD-travel : 0.700.90 *
Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)	+ difference mm: (0.700.90) + Shutoff
Shutoff electromagnet volt: -	+ electromagnet Volt: 12 + 2nd speed 1/min: 1000 + Charge press. hPa: 1000
Damper set qty.:	TD-travel : 1.101.90 ' difference mm: (1.101.90)
LFG-setting: solidale con carcassa: Idle delivery:	Shutoff electromagnet Volt: 12
1st speed 1/min: 425	SP pressdif.measurement: pompa di mandata (FP):
Shutoff electromagnet Volt: 12	1st speed 1/min: 1000 Charge press. hPa: 1000
Del. quantity cm3/: 10.0014.00 1000s.: (9.0015.00)	+ Supply pump- + pressure : 0.100.30 # + difference bar: (0.100.30)
High Idle:	+ Shutoff + electromagnet Volt: 12
1st spieed 1/mi: 500 Shutoff	Part-load del.at 3rd injqty.
electromagnet Volt: 12 Del. quantity cm3/: 12.0016.00 1000s.: (11.0017.00)	terza fermo della portata stop (EGR set) scarico) (ARF)
Residual:	gaz d'échappement-ARF) Spacing mm: 12.0
1.Rotacao 1/min: 550 Shutoff	1st speed 1/min: 500 Shutoff
electromagnet Volt: 12 Del. quantity cm3/: 1.005.00 1000S.: (0.006.00)	electromagnet Volt: 12 Del. quantity cm3/: 20.0022.00 1000s.: (18.5023.50)
Load-dependent start of delivery: Injqty.dif.measurement:	Automatic starting fuel delivery:
1st speed	1st speed 1/min: 200 Shutoff
Charge press. hPa: 1000 Injqty. cm3/ : 19.0025.00 difference 1000S.: *	electromagnet Volt: 12 Del. quantity cm3/: 50.0074.00 1000S.: (50.0074.00)
Shutoff electromagnet Volt: 12 2nd speed 1/min: 1000	2nd speed 1/min: 350 Shutoff
Charge press. hPa: 1000 Injqty. cm3/: 19.0021.00 difference 1000s.: #	electromagnet Volt: 12 Del. quantity cm3/: 36.0044.00 1000S.: (36.0044.00)
electromagnet Volt: 12 4th speed 1/min: 1000	4th speed 1/min: 100 Shutoff
Charge press. hPa: 1000 Injqty. cm3/: +2.008.00 difference 1000S.:	electromagnet Volt: 12 Del. quantity cm3/: 50.0074.00 10008.: (50.0074.00)
Shutoff electromagnet Volt: 12	Shutoff electromagnet:
TD-travel dif.measurement: correttore anticipo iniezione (SV):	Cut-in in voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: --

K KF mm: 5.6...6.0 mm: 1.1...1.5 mm: 4.5 MS

LDA stroke

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

Add 12 mm spacer at 3rd part-load-quantity stop.

Note inst. in remarks column

Test scheet

: 13.04.92 Edition

replaces

Calibrating oil : ISO-4113

: VE4/9F2350R452 Injection pump Type number : 0 460 494 299

Customer Part-No. :

Customer-specific information

Customer : RNUR

: J8S - 784 Engine

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer: 40.00...48.00

: 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Openina |

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00

mm: 450 x Length

Start of delivery

Prestroke mm: -(from BDC): -

Injection pump setting values

Test specifications in parentheses

Timing device travel

1/min: 1125 Speed

Setting value mm: 2.60...3.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed

1/min: 1125

Shutoff electromagnet Volt: 12

Full-load del. w/out charge press.:

Setting value bar: 4.20...4.80

1/min: 1125 Speed

Del. quantity cm3/

1000s.: 35.20...36.20

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 Dispersion

1000s.: (3.0)

Residual-Delivery Setting

1/min: 500 Speed

Del. quantity cm3/

1000s.: 2.00...6.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2500 Speed

Del. quantity cm3/

1000s.: 20.00...26.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 52.00...92.00 mind 1000S.: 52.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1125 Speed

cm3/Inj.-qty.

difference 1000s.: 11.00...15.00 #

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement

correttore anticipo iniezione (SV) 1.Speed 1/min: 1125

TD-travel

mm: 0.50...0.70 # difference

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 2000 2nd speed

K11

TD travel mm: 7.10	.7.90 +	Shutoff
mm: (6.80		electromagnet Volt: 12
Shutoff	,	Del. quantity cm3/: 20.0026.00
electromagnet Volt: 12	1	1000s.: (19.0027.00)
3rd speed 1/min: 1125	Ĺ	9th speed 1/min: 2250
	7 m	
TD travel mm: 2.60		Shutoff
mm: (2.10.	3.50) +	electromagnet Volt: 12 Del. quantity cm3/: 34.5036.50 1000s.: (33.2037.80)
Shutoff	+	Del. quantity_cm3/: 34.5036.50
electromagnet Volt: 12	†	1000s.: (33.2037.80)
4th speed 1/min: 800	+	10th speed 1/min: 1750
TD travel mm: 0.70	.1.50 +	Shutoff
mm: (0.40.	1.80)	electromagnet Volt: 12
Shutoff		Del. quantity cm3/: 34.1036.10
electromagnet Volt: 12	i.	1000s.: (32.8037.40)
etectromagnet vott. 12	1	12th speed 1/min: 1125
C 1	T.	Shutoff
Supply-pump pressure chara-	cteristic:	
	+	electromagnet Volt: 12
1st speed 1/min: 800	+	Del. quyntity cm3/: 35.2036.20 1000s.: (33.4038.00)
Supply-pump	+	10005.: (33.4038.00)
pressure bar: 3.10	.3.70 +	20th speed 1/min: 800
Shutoff	+	Shutoff
electromagnet Volt: 12	4	electromagnet Volt: 12
2nd speed 1/min: 1125	1	Del. quantity cm3/: 32.9035.90
Supply-pump	1	1000s.: (32.1036.70)
	/ en 1	1000011 (00110111001110
	.4.00	Mech. shutoff:
Shutoff	Ť	recii. Silutori.
electromagnet Volt: 12	†	ml . i double fif
3rd speed 1/min: 2000	+	Electr. shutoff:
Supply-pump	+	
pressure bar: 6.50	.7.10 +	1st speed 1/min: 400
Shutoff	+	Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	+	1000s.: (0.003.00)
	1	Shutoff
Overlow quantity at overfl	au valve.	electromagnet volt: -
over tow quarterty at over it	J.	etcoti oliagi loc votti
1st speed 1/min: 800	\mathbf{I}	Damper set qty.:
	T	balliper set qty
Shutoff	Ť	150 makkinga
electromagnet Volt: 12	†	LFG-setting:
Overflow : 41.70.	83.40	solidale con carcassa:
quantity cm3/10s: (26.70	····98.40) +	Idle delivery:
2nd speed 1/min: 2250	+	
Shutoff	+	1st speed 1/min: 400
electromagnet Volt: 12	+	Shutoff
Overflow: 55.60.	139.00	electromagnet Volt: 12
quantity cm3/10s: (40.60		Del. quantity cm3/: 6.0010.00
qualities capitos. (40.00	1	10005.: (4.0012.00)
No. 1 de la marche and brooks	unic obon i	10000:: (4.00:::12.00)
Delivery quant. and breaka	way chart.	lianh Tollan
	†	High Idle:
	†	4
2nd speed 1/min: 2750	+	1st speed 1/mi: 500
Shutoff	+	Shutoff
electromagnet Volt: 12	+	electromagnet Volt: 12
Del. quantity cm3/: 0.00	.5.00 +	Del. quantity cm3/: 8.5012.50
1000s.: (0.00.	5.00)	1000s.: (6.5014.50)
3rd speed 1/min: 2650	1	
Shutoff	1	Residual:
	I	TIPUT MUMES
electromagnet Volt: 12	10 50 T	1.Rotacao 1/min: 500
Del. quantity cm3/: 2.50	14 50)	
1000s.: (1.50.		Shutoff
5th speed 1/min 2500		

Del. quantity cm3/: 2.00...6.00 1000\$:: (2.00...6.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1125 1st speed Inj.-qty. cm3/ : 10.0...12.0 * difference 1000s.: (10.00...12.00) Shutoff difference 1000S.: (11.00...15.00) Shutoff electromagnet Volt: 12 1/min: 1125 5th speed cm3/: 2.00...8.00 ' Inj.-qty. difference 1000S.: (2.00...8.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1125 : 0.50...0.70 # TD-travel mm: (0.50...0.70) difference Shutoff electromagnet Volt: 12 3rd speed 1/min: 1125 : 1.10...1.50 ' mm: (1.00...1.60) TD-travel difference Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1125 Supply pumppressure : 0.10...0.30 * bar: (0.10...0.30) difference Shutoff electromagnet Volt: 12 Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) mm: 12.0 Spacing 1/min: 1000 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 23.50...24.50 1000s.: (21.50...26.50)

Automatic starting fuel delivery:

1/min: 210

Shutoff electromagnet Volt: 12 bel. quantity cm3/: 45.00...85.00 1000s.: (45.00...85.00) 1/min: 310 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1000s.: (25.00...45.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 52.00...92.00 1000s.: (52.00...92.00) Shutoff electromagnet: Cut-in : 10.0 min voltage : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: 3.2...3.4 K mm: $5.\overline{3}...5.7$ KF MS mm: 1.3...1.7 SVS max. mm: 3.0 Remarks: For adjustment of switching point (EGR valve), include 12.0 mm spacer at third fuel-delivery stop.

On initial measurement, screw in residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting screw 1 mm after setting pump.

1st speed

Note inst. in remarks column

Test scheet

: 13.04.92 Edition

replaces

: ISO-4113 Calibrating oil

: VE4/9F2350R452-1 Injection pump : 0 460 494 300 Type number

Customer Part-No. :

Customer-specific information

Customer

: RNUR

Engine

: J8S - 784 CA

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1125 Speed

Setting value mm: 2.60...3.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1125 Speed

K14

Setting value bar: 4.20...4.80

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1125 Speed

Del. quantity cm3/ 1000s.: 35.20...36.20

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Residual-Delivery Setting

1/min: 500 Speed

Del. quantity cm3/ 1000s.: 2.00...6.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2500 Speed

Del. quantity cm3/ 1000s.: 20.00...26.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 52.00...92.00 mind 1900s.: 52.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Ini.-qty.dif.measurement:

1/min: 1125 Speed

Inj.-qty. cm3/ difference 1000S.: 11.00...15.00 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1125 1.Speed

TD-travel

difference mm: 0.50...0.70 #

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 2000 2nd speed

mm: 7.10...7.90 Shutoff TD travel electromagnet Volt: 12
Del. quantity cm3/: 20.00...26.00
1000S.: (19.00...27.00)
9th speed 1/min: 2250 mm: (6.80...8.20) Shutoff elactromagnet Volt: 12 3rd speed 1/min: 1125 9th speed mm: 2.60...3.00 Shutoff TD travel electromagnet Volt: 12
Del. quantity cm3/: 34.50...36.50
1000S.: (33.20...37.80)
10th speed 1/min: 1750 mm: (2.10...3.50) Shutoff electromagnet Volt: 12 4th speed 1/min: 800 mm: 0.70...1.50 mm: (0.40...1.80) Shutoff TD travel electromagnet Volt: 12
Del. quantity cm3/: 34.10...36.10
1000S.: (32.80...37.40)
12th speed 1/min: 1125 Shutoff electromagnet Volt: 12 Shutoff Supply-pump pressure characteristic: electromagnet Volt: 12 Del. quyntity cm3/: 35.20...36.20 1/min: 800 1st speed 10005.: (33.40...38.00) Supply-pump 20th speed 1/min: 800 bar: 3.10...3.70 pressure Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 32.90...35.90 1000S.: (32.10...36.70) electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump bar: 4.20...4.80 pressure Mech. shutoff: Shutoff electromagnet Volt: 12 1/min: 2000 Electr. shutoff: 3rd speed Supply-pump bar: 6.50...7.10 1/min: 400 pressure 1st speed Del. quantity cm3/: 0.00...3.03 Statoff 1000s.: (0.00...3.00) electromagnet Volt: 12 Shutoff electromagnet volt: -Overlow quantity at overflow valve: 1st speed Shutoff 1/min: 800 Damper set qty.: LFG-setting: solidale con carcassa: electromagnet Volt: 12 Overflow: 41.70...83.40 Idle delivery: cm3/10s: (26.70...98.40) quantity 1/min: 2250 2nd speed 1/min: 400 1st speed Shutoff Shutoff electromagnet Volt: 12 : 55.60...139.00 Overflow electromagnet Volt: 12 Del. quantity cm3/: 6.00...10.00 1000S.: (4.00...12.00) cm3/10s: (40.60...153.00) quantity Delivery-quant. and breakaway char .: High Idle: 1/mi: 500 1st speed 1/min: 2750 2nd speed Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) 3rd speed 1/min: 2650 Del. quantity cm3/: 8.50...12.50 1000s.: (6.50...14.50) 3rd speed Residual: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.50...10.50 1000s.: (1.50...11.50) 1/min: 500 1.Rotacao Shutoff 1/min: 2500 electromagnet Volt: 12 5th speed

Del. quantity cm3/: 2.00...6.00 1000S.: (2.00...6.00) Load-depandent start of delivery: Inj.—qty.dif.measurement: 1/min: 1125 1st speed Inj.-qty. cm3/ : 10.0...12.0 * difference 1000s.: (10.00...12.00) electromagnet Volt: 12 3rd speed 1/min: 1125 Inj. qty. cm3/: 11.0...15.0 # difference 1000s.: (11.00...15.00) Shutoff electromagnet Volt: 12 5th speed 1/min: 1125 cm3/: 2.00...8.00 ' Inj.-qty. difference 1000S.: (2.00...8.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1125 TD-travel : 0.50...0.70 # mm: (0.50...0.70) difference Shutoff electromagnet Volt: 12 3rd speed 1/min: 1125 : 1.10...1.50 ' TD-travel mm: (1.00...1.60) difference Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1/min: 1125 1st speed Supply pump-: 0.10...0.30 * pressure bar: (0.10...0.30) difference Shutoff electromagnet Volt: 12 Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) mm: 12.0 Spacing 1/min: 1000 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 23.50...24.50 1000s.: (21.50...26.50) Automatic starting fuel delivery:

1/min: 210

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...85.00 1000S.: (45.00...85.00) 1/min: 310 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1000s.: (25.00...45.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 52.00...92.00 1000s.: (52.00...92.00) Shutoff electromagnet: Cut--in : 10.0 min voltage : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation K mm: 3.2...3.4 KF mm: 5.3...5.7 MS mm: 1.3...1.7 SVS max. mm: 3.0

Remarks:

For adjustment of switching point (EGR valve), include 12.0 mm spacer at third fuel-delivery stop.

On initial measurement, screw in residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting screw 1 mm after setting pump.

K16

1st speed

Note inst. in remarks column

Test scheet : VWW

: 13.04.92 Edition

replaces : ISO-4113 Calibrating oil

: VE4/9F2100R471 Injection pump : 0 460 494 308

Type number Customer Part-No. :

Customer-specific information

Customer

: 1,9 L UD Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer: 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery block mm: -Piston stroke mm: -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250

Setting value mm: 3.70...4.10

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 5.30...5.90

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250

Del. quantity cm3/

1000s.: 42.00...43.00

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion

1000s.: (3.0)

Residual-Delivery Setting

1/min: 550

Del. quantity cm3/ 1000s.: 5.50...6.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2400 Speed

Del. quantity cm3/

1000s.: 12.00...16.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 40.00...90.00 mind 1000s.: 40.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.~qty.dif.measurement:

1/min: 1250 Speed

Inj.-qty. cm3/

difference 1000S.: 7.00...13.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV) 1.Speed 1/min: 1250

TD-travel

mm: 0.90...1.10 difference

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed	+ 8th speed 1/min: 2250 + Shutoff
mm: (5.206.80) Shutoff	electromagnet Volt: 12 Del. quantity cm3/: 25.0035.00
electromagnet Volt: 12	10005.: (24.0036.00)
3rd speed 1/min: 1250	+ 9th speed 1/min: 1850
TD travel mm: 3.704.10	+ Shutoff
mm: (3.104.70)	+ electromagnet Volt: 12
	Not expended on 7/2 /0 00 /2 00
Shutoff	Del. quantity cm3/: 40.0042.00 1000S.: (38.8043.20)
electromagnet Volt: 12	10005.: (30.0043.00)
4th speed 1/min: 750	† 12th speed 1/min: 1250
TD travel mm: 1.101.90	+ Shutoff
mm: (0.702.30)	+ electromagnet Volt: 12
Shutoff	+ Del. quyntity cm3/: 42.0043.00
electromagnet Volt: 12	1000S.: (40.3044.70)
	- 20th speed 1/min: 750
Supply-pump pressure characteristic:	+ Shutoff
supply pump pressure official actor (sere)	- electromagnet Volt: 12
1st speed 1/min: 750	Del. quantity cm3/: 33.5036.50
	10005.: (32.0038.00)
Supply-pump	1 21th speed 1/min: 450
pressure bar: 3.804.40	
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
2nd speed 1/min: 1250	+ Del. quantity cm3/: 31.5037.50
Supply-pump	1000s.: (29.0040.00)
pressure bar: 5.305.90	+
Shutoff	+ Mech. shutoff:
electromagnet Volt: 12	+
3rd speed 1/min: 1700	<pre>∔ Electr. shutoff:</pre>
Supply-pump	
pressure bar: 6.607.20	1st speed 1/min: 425
	Del. quaritity cm3/: 0.003.00
Shutoff	1000s.: (0.003.00)
electromagnet Volt: 12	Shutoff
• I will be a wall a combined	
Overlow quantity at overflow valve:	+ electromagnet volt: -
A	† .
1st speed 1/min: 750	† Damper set qty.:
Shutoff	†
electromagnet Volt: 12	+ LFG-setting:
Overflow : 41.7083.40	+ solidale con carcassa:
quantity cm3/10s: (27.8097.30)	† Idle delivery:
2nd speed 1/min: 1850	+
Shutoff	1st speed 1/min: 425
electromagnet Volt: 12	+ Shutoff
Overflow : 55.60138.90	+ electromagnet Volt: 12
quantity cm3/10s: (41.70152.90)	Del. quantity cm3/: 7.009.00
qualitity this last things in the	1000s.: (4.0012.00)
Delivery-quant. and breakaway char.:	1
vertively qualit. and bi eakaway char	∔ High Idle:
	I mgn race.
2nd grand 1/mins 2650	1st speed 1/mi: 500
2nd speed 1/min: 2650	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
Del. quantity cm3/: 0.003.00	Del. quantity cm3/: 7.009.00
1000s.: (0.003.00)	† 1000s.: (4.0012.00)
5th speed 1/min: 2400	+
Shutoff	+ Residual:
electromagnet Volt: 12	†
Del. quantity cm3/: 12.0016.00	+ 1.Rotacao 1/min: 550
1000s.: (10.0018.09)	+

mm: 12.0 Spacing Shutoff electromagnet Volt: 12 Del. quantity cm3/: 5.50...6.50 1000s.: (4.00...8.00) 2nd speed 1/min: 515 1/min: 1000 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 27.CD...29.00 1000S.: (25.00...31.00) 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 5.50...7.50 1000S.: (4.00...9.00) Automatic starting fuel delivery: 1st speed 1/min: 180 Load-dependent start of delivery: Shutoff Inj.-dty.dif.measurement: electromagnet Volt: 12 Del. quantity cm3/: 40.00...90.00 1000s.: (40.00...90.00) 1/min: 1250 1st speed Inj.-qty. cm3/ : 7.00...13.00' difference 1000s.: (6.00...14.00)
3rd speed 1/min: 1250 2nd speed 1/min: 380 cm3/: 6.00...8.00 # Shutoff Inj.-qty. electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1000s.: (25.00...45.00) difference 1000S.: (6.00...8.00) Shutoff electromagnet Volt: 12 5th speed 1/min: 1250 cm3/: +0.00...3.00* 1/min: 100 4th speed Ini.-aty. difference 1000s.: +(0.00...3.00) Shutoff electromagnet Volt: 12 Shutoff Del. quantity cm3/: 40.00...90.00 electromagnet Volt: 12 1000s.: (40.00...90.09) TD-travel dif.measurement: Shutoff electromagnet: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 : 0.90...1.10 # Cut-in TD-travel mm: (0.90...1.10) min voltage : 10.0 difference : 12.0 Rated voltage Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Mounting and assembly dimensions: : 1.30...1.70 * TD-travel mm: (0.90...2.10) Designation difference mii: 3.2...3.4 Shutoff mm: 5.1...5.5 mm: 1.2...1.4 KF electromagnet Volt: 12 MS SP press.-dif.measurement: Remarks: pompa di mandata (FP): 1/min: 1250 1st speed For adjustment of switching point Supply pump-(EGR valve), include 12.0 mm spacer : 0.70...1.10 * pressure at third fuel-delivery stop. bar: (0.50...1.30) difference Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 On initial measurement, screw in Supply pumpresidual-quantity adjusting screw 2 mm. : 0.10...0.30 # pressure bar: (0.10,..0,30) difference Following pump adjustment, screw out Shutoff residual-quantity adjusting screw 2 mm. electromagnet Volt: 12 Part-load del.at 3rd inj.-gty. terza fermo della portata stop (EGR set)

scarico) (ARF)

gaz d'échappement-ARF)

Note inst. in remarks column

Test scheet

: 15.04.92 Edition

replaces

Calibrating oil : ISO-4113

: YE4/9F2150R474-1 Injection pump

: 0 460 494 313 Type number

Customer Part-No. :

Customer-specific information

Customer

: XUD11ATE-L/BVA Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer: 40.00.48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00

x Wall thickness : 2.00 mm: 450 x Length

Start of delivery

Indicator setting

Piston stroke mm: 0.3

Outlet : A

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Charge press. hPa: 1000

Setting value mm: 2.30...2.70

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed Charge press hPa: 1000

Setting value bar: 5.00...5.60

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 61.00...62.00

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion

1000s.: (2.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 42.00...43.00

Shutoff

elactromagnet Volt: 12 Dispersion cm3/: 2.5

1000s.: (2.5)

Residual-Delivery Setting

Speed 1/min: 550

Del. quantity cm3/ 1000S.: 2.50...3.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2250 Speed

Charge press hPa: 1000

Del. quantity cm3/ 1000s.: 49.00...55.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 70.00...80.00 mind 1000s.: 70.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

K20

2nd speed 1/min: 2000	+ Charge-air pressure-setting
Charge press hPa: 1000	+ point hPa: 400
Th Americal 5 50 4 70	+ LDA-stroke mm: 7.1
TD travel mm: 5.506.30	
mm: (5.206.60)	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 56.0057.00
eteutholistiet vott. 12	10008.: (53.5059.50)
3rd speed 1/min: 1250	
Charge press hPa: 1000	+ 2nd speed 1/min: 2700
TD travel mm: 2.302.70	+ Charge press. hPa: 1000
(2.00 7.00)	+ Shutoff
mm: (2.003.00)	
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	1 Del cuantity cu3/: 5.0011.00
	10005:: (4.0012.00) - 3rd speed 1/min: 2400
4th speed 1/min: 1000	10003 (4.0012.00)
Charge press hPa: 1000	+ 3rd speed 1/min: 2400
TD travel mm: 0.901.70	+ Charge press. hPa: 1000
mm: (0.602.00)	+ Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 33.5040.50
cteett omagitet vett. Te	1000s.: (33.0041.00)
Supply-pump pressure characteristic:	+ 5th speed 1/min: 2250
	+ Charge press. hPa: 1000
1st speed 1/min: 1000	+ Shutoff
15t Speed 1/1911. 1000	
Charge press. hPa: 1000	+ electromagnet Volt: 12
Supply-pump	+ Del. quantity cm3/: 49.0055.00
	1000s.: (48.0056.00)
Shutoff	+ 9th speed 1/min: 2000
electromagnet Volt: 12_	+ Charge press. hPa: 1000
2nd speed 'i/min: 1250	+ Shutoff
character to the second to the	
Charge press. hPa: 1000	+ electromagnet Volt: 12
Supply-pump	+ Del. quantity cm3/: 55.0058.00
pressure bar: 5.005.60	1000\$.: (54.2058.80)
(r) = = = = - · · ·	10th speed 1/min: 1000
Shutoff	
electromagnet Volt: 12	+ Charge press. hPa: 1000
3rd speed 1/min: 2000	+ Shutoff
	+ electromagnet Volt: 12
9 1	1 0-1 minutian ==7/4 40 50 47 50
Supply-pump	+ Del. quantity cm3/: 60.5063.50
pressure bar: 7.107.70	1000s.: (59.5064.50)
Shutoff	+ 12th speed 1/min: 1250
at a star and an at Matter 12	Change inner her 1000
electromagnet Volt: 12	Charge press. hPa: 1000
	+ Shutoff
Overlow quantity at overflow valve:	+ electromagnet Volt: 12
grot con quality as over took taster	Del. quyntity cm3/: 61.0062.00
4	4000c . (50 20 . 47 90)
1st speed 1/min: 500	1000\$.: (59.2063.80)
Charge press. hPa: -	† 13th speed 1/min: 500
Shutoff	† Charge press. hPa: -
	+ Shutoff
electromagnet Volt: 12	
Overflow : 41.7083.40	+ electromagnet Volt: 12
$\frac{1}{2}$ cm ³ /10s ² (26.7098.40)	+ Del. quantity cm3/: 42.0043.00
quantity cm3/10s: (26.7098.40) 2nd speed	1000s.: (40.2044.80)
Zha speed Militi Zouo	2011 4/ 500
Charge press. hPa: -	+ 20th speed 1/min: 500
Shutoff	+ Charge press. hPa: 1000
electromagnet Volt: 12	+ Shutoff
Overflow : 55.60139.00	+ electromagnet Volt: 12
quantity cm3/10s: (40.60153.00)	+ Del. quantity cm3/: 60.0063.00
1	1000s.: (59.0064.00)
halding and head and chart	1
Delivery-quant. and breakaway char.:	T March which the
	+ Mech. shutoff:
	+ Mech. Abstellung:
1nd speed 1/min: 750*	1
um sheen itmur ton.	1st speed 1/min: 2000
	† 1st speed 1/min: 2000

Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: 12 Electr. shutoff: Shutoff electromagnet volt: -Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1/min: 325 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.00...14.00 1000s.: (10.00...16.00) 2nd speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 5.00...11.00 1000s.: (5.00...11.00) High Idle: 1/mi: 450 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.00...13.00 1000s.: (9.00...15.00) Residual: 1/min: 550 1.Rotacao Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.50...3.50 1000s.: (0.50...5.50) Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) mm: 12.0 Spacing 1/min: 1000 1st speed Charge press. hPa: 1000

electromagnet Volt: 12 Del. quantity cm3/: 25.00...26.00 1000s.: (22.50...28.50)

Automatic starting fuel delivery: 1/min: 325 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.00...44.00 1000s.: (36.50...44.50) 1/min: 200 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 76.00...78.00 1000s.: (74.50...79.50) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...80.00 1000s.: (68.00...82.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: 3.2...3.4 mm: 5.2...5.6 K KF mm: 0.9...1.3 MS mm: 7.1 LDA stroke Remarks: Add 12 mm spacer at 3rd part-load-quantity stop.

Shutoff

Note inst. in remarks column

Test scheet

: 13.04.92 Edition

replaces

: ISO-4113 Calibrating oil

: VE4/9F2200R416-1 Injection pump

: 0 460 494 315 Type number

Customer Part-No. :

Customer-specific information

: RNUR Customer

: J8s - 890 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 043

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery

Prestroke mm: 0.2

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 0.3

mm: +-0.02(0.06)

Outlet |

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1400 Speed Charge press. hPa: 800

Setting value mm: 4.00...4.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1400 Speed Charge press hPa: 800

Setting value bar: 5.10...5.70 Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1400 Speed Charge press. hPa: 800

Del. quantity cm3/ 1000s.: 47.20...48.29

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 37.00...38.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425

Del. quantity cm3/

1000s.: 7.00...11.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 100Gs.: (3.0)

Full-load speed regulation

1/min: 2400 Speed Charge press hPa: 800

Del. quantity cm3/

1000s.: 23.00...29.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 60.00...100.00

1000s.: 60.00 mind

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

· · · · · · · · · · · · · · · · · · ·	- Zna speea Trimini zoou
Timing-device characteristic: -	Charge press. hPa: 800
•	∔ Shutoff
2nd speed 1/min: 2000 -	electromagnet Volt: 12
Charge press hPa: 800	Overflow : 55.60139.00
TD travel mm: 6.207.00	quantity cm3/10s: (40.60153.00)
ma: (6.207.00)	quarters) sino rest treatment
	Delivery-quant. and breakaway char.:
Shutoff	T Decivery quant. and breakaway char
electromagnet Volt: 12	†
3rd speed 1/min: 1400	†
Charge press hPa: 800	1nd speed 1/min: 700*
TD travel mm: 4.004.40	- Charge-air pressure-setting
mm: (3.504.90)	point hPa: 200
Shutoff	+ Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
4th speed 1/min: 1000	Del. quantity cm3/: 41.0042.00
	1000s.: (38.5044.50)
Charge press hPa: 800	10003 (30,3044.30)
TD travel mn: 1.902.70	2nd speed 1/min: 2700
mm: (1.603.00)	Charge press. hPa: 800
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
6th speed 1/min: 1800	Del. quantity cm3/: 0.003.00
Charge press. hPa: 800	1000s.: (0.003.00)
TD travel mm: 5.706.50	3rd speed 1/min: 2500
TO Travel Inn. J. (UG.)U	Character box 800
mm: (5.406.80)	+ Charge press. hPa: 800
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
	+ Del. quantity cm3/: 2.5017.50
Supply-pump pressure characteristic:	10008.: (2.5017.50)
pospecy former by consider a construction of the construction of t	+ 5th speed 1/min: 2400
1st speed 1/min: 600	+ Charge press. hPa: 800
	Shutoff
Charge press. hPa: -	
Supply-pump	electromagnet Volt: 12 Del. quantity cm3/: 23.0029.00
pressure bar: 2.603.20	1- Del. quarterty cms/: 25.0029.00
bar: (2.303.50)	1000s.: (22.0030.00)
Shutoff	+ 9th speed 1/min: 2000
electromagnet Volt: 12	+ Charge press. hPa: 800
2nd speed 1/min: 1400	+ Shutoff
Charge press. hPa: 890	+ electromagnet Volt: 12
Cland Land and	+ Del. quantity cm3/: 44.1045.10
Supply-pump pressure bar: 5.105.70	10005.: (42.8047.40)
	12th aread 1/min: 1/00
bar: (4.806.00)	+ 12th speed 1/min: 1400
Shutoff	+ Charge press. hPa: 800
electromagnet Volt: 12	+ Shutoff
3rd speed 1/min: 2000	+ electromagnet Volt: 12
Charge press. hPa: 800	+ Del. quyntity cm3/: 47.2048.20
Supply-pump	1000s.: (45.4050.00)
pressure bar: 6.907.50	+ 18th speed 1/min: 600
bar: (6.607.80)	+ Charge press. hPa: -
	+ Shutoff
Shutoff	
electromagnet Volt: 12	+ electromagnet Volt: 12
	+ Del. quantity cm3/: 37.0038.00
Overlow quantity at overflow valve:	1000s.: (34.5040.50)
•	+ 20th speed 1/min: 1000
1st speed 1/min: 600	+ Charge press. hPa: 800
Charge press. hPa: -	+ Shutoff
Shutoff	+ electromagnet Volt: 12
	Del. quantity cm3/: 45.6048.60
electromagnet Volt: 12	1000s.: (44.1050.10)
Overflow : 41.7083.40	100000: (44.1030.10)
quantity cm3/10s: (26.7098.40)	+

mm: 5.6...6.0 mm: 1.3...1.7 Mech. shutoff: KF MS mn: 4.8 SVS max. Electr. shutoff: Remarks: 1/min: 425 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1/min: 425 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...11.00 1000s.: (5.00...13.00) cm3/: 2.5 Dispersion 1000s.: (3.0) 1/min: 550 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 3rd speed 1/min: 450 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.00...7.00 1000s.: (1.00...9.00) Automatic starting fuel delivery: 1/min: 180 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...100.00 1000s.: (40.00...100.00) 1/min: 300 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 20.00...40.00 1000s.: (20.00...40.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 60.00...100.00 1000s.: (60.00...100.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation

K25

K

mm: 3.2...3.4

Note inst. in remarks column

Test scheet

: 13.04.92 Edition

replaces

: ISO-4113 Calibrating oil

: VE4/9F2200L243-6 Injection pump : 0 460 494 316

Type number

Customer Part-No. :

Customer-specific information

: OPEL Customer

: 2,3 YD **Engine**

KW: 54 Power

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle holder

: 1 688 901 000 assembly

Opening |

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00

x Wall thickness : 2.00

mm: 840 x Length

Start of delivery block mm: -Piston stroke

mm: -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1200 Speed

Setting value mm: 4.30...4.70

AFB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1200 Speed

Setting value bar: 4.00...4.60

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1200 Speed

Del. quantity cm3/ 1000s.: 43.00...44.00

11

KSB/AFB Volt: 12 valve

Shutoff

electromagnet Volt: 12

cm3/: 2.5 Dispersion 1000s.: (3.0)

Low-idle speed regulation

1/min: 290 Speed

Del. quantity cm3/ 1000s.: 10.00...14.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

1/min: 2450 Speed

Del. quantity cm3/

1000s.: 21.00...27.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 47.00...73.00 mind 1000s.: 47.00

KSB/AFB

Volt: 12 Valve

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1200

cm3/Shutoff Inj.-qty. difference 1000s.: 4.50...12.50 electromagnet Volt: 12 KSB/AFB Supply-pump pressure characteristic: Volt: 12 valve Shutoff 1/min: 2200 electromagnet Volt: 12 1st speed TD-travel dif.measurement Supply-pump correttore anticipo iniezione (SV) 1. Speed 1/min: 1200 bar: 6.50...7.10 pressure KSB/AFB 1. Speed Volt: 12 valve TD-travel mm: 0.50...0.70 Shutoff difference electromagnet Volt: 12 2nd speed 1/min: 1200 KSB/AFB Volt: 12 2nd speed valve Supply-pump Shutoff bar: 4.00...4.60 pressure electromagnet Volt: 12 KSB/AFB Volt: 12 valve Inspection-pump test specifications Shutoff Test specifications in parentheses electromagnet Volt: 12 1/min: 800 3rd speed Timing-device characteristic: Supply-pump bar: 3.00...3.60 2nd speed 1/min: 2200 pressure mm: 8.80...9.60 KSB/AFB TD travel Volt: 12 mm: (8.50...9.90) valve Shutoff KSB/AFB electromagnet Volt: 12 Volt: 12 valve 1/min: 600 4th speed Shutoff electromagnet Volt: 12 Supply-pump bar: 2.40...3.00 1/min: 1200 pressure 3rd speed KSB/AFB mm: 4.30...4.70 TD travel mm: (3.80...5.20) Volt: 12 valve Shutoff KSB/AFB electromagnet Volt: 12 Volt: 12 valve Shutoff Overlow quantity at overflow valve: electromagnet Volt: 12 1/min: 800 4th speed 1/min: 600 /mm: 2.10...2.90 1st speed TD travel rsp: (1.80...3.20) KSB/AFB Volt: 12 valve KSB/AFB Volt: 12 Shutoff valve electromagnet Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 600 TD travel mm: 0.90...1.70 : 41.70...83.40 Overflow cm3/10s: (26.70...98.40) 1/min: 2200 quantity TD travel 2nd speed KSB/AFB KSB/AFB Volt: 12 Volt: 12 valve valve Shutoff Shutoff electromagnet Volt: 12 Overflow : 55.60...139.00 electromagnet Voit: 12 1/min: 300A 9th speed cm3/10s: (40.60...153.00) mm: 2.70...4.30 quantity TD travel mm: (2.50...4.50) Delivery-quant. and breakaway char.: KSB/AFB Volt: valve Shutotf 1/min: 2700 2nd speed electromagnet Volt: 12 KSB/AFB 1/min: 800B 10th speed Volt: 12 mm: 3.10...5.50 valve TD travel Shutof: mm: (3.10...5.50) electromagnet Volt: 12 KSB/AFB valve Volt: -

K27

Del. quantity cm3/: 0.003.00 +	Dispersion cm3/: 3.0 1000s.: (3.0)
1000s.: (0.003.00)	2nd speed 1/min: 400
3rd speed 1/min: 2600 + KSB/AFB	KSB/AFB
valve Volt: 12	valve Volt: 12
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
Del. quantity cm3/: 2.0010.00 +	Del. quantity cm3/: 0.002.60
1000s.: (1.0011.00) +	10005.: (0.002.60)
5th speed 1/min: 2450 +	3rd speed 1/min: 320
KSB/AFB +	KSB/AFB
valve Volt: 12	valve Volt: 12
Shutoff	Shutoff
	electromagnet Volt: 12
electromagnet Volt: 12	0-1 augustán 0-7/1 5 00 11 00
Del. quantity cn3/: 21.0027.00	Del. quantity cm3/: 5.0011.00
1000s.: (20.0028.00) +	1000s.: (4.5011.50)
9th speed 1/min: 2200 +	
KSB/AFB +	Load-dependent start of delivery:
valve Volt: 12 +	Injqty.dif.measurement:
Shutoff	
	1st speed 1/min: 1200
electromagnet Volt: 12	7m;mis cm2/ £ 00 9.00
Del. quantity cm3/: 35.5038.50	Inj.—qty. cm3/ : 6.008.00
1000s.: (34.7039.30) +	difference 1000s.: (6.008.00)
12th speed 1/min: 1200 +	KSB/AFB
KSB/AFB +	valve Volt: 12
valve Volt: 12 +	Shutoff
Shutoff	electromagnet Volt: 12
	ctooti allagitos vocas ta
electromagnet Volt: 12	TD-travel dif.measurement:
Del. quyntity cm3/: 43.0044.00	
1000s.: (41.2045.80) +	correttore anticipo iniezione (SV):
20th speed 1/min: 600 +	1st speed 1/min: 1200
KSB/AFB +	TD-travel : 0.500.70
valve Volt: 12	difference mm: (0.500.70)
Shutoff	KSB/AFB
electromagnet Volt: 12	valve Volt: 12
Del. quantity cm3/: 35.0039.00	Shutoff
10008: (34.5040.50)	electromagnet Volt: 12
10000 (34.3040.30)	Cecer onagrice voce. The
Mech, shutoff:	Automatic starting fuel delivery:
riech, Shucori :	Automatic Starting ruce activery.
Thomas shouses.	1st speed 1/min: 130
Electr. shutoff:	
†	KSB/AFB
1st speed 1/min: 290 +	valve Volt: 12
Del. quantity cm3/: 0.003.00 +	Shutoff
1000s.: (0.003.00)	electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 47.0073.00
electromagnet volt: -	1000s.: (47.0073.00)
KSB/AFB +	•
valve Volt: -	- 2nd speed 1/min: 270
vacve vocc.	- KSB/AFB
Tall a solution man	· valve Volt: 12
Idle delivery:	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Shutoff
1st speed 1/min: 290	electromagnet Volt: 12
KSB/AFB	- Del. quantity cm3/: 25.0035.00
valve Volt: 12	1000s.: (25.0035.00)
Shutoff	•
electromagnet Volt: 12	- 4th speed 1/min: 100
Del. quantity cm3/: 10.0014.00	- KSB/AFB
10005.: (8.0016.00)	- valve Volt: 12
1	
T-	

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 47.00...73.00 1000s.: (47.00...73.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 mm: 5.6...6.0 mm: 0.8...1.2 K KF MS

A = KSB adjustment point B = KSB curve point

Note inst. in remarks column

Test scheet : 13.04.92 Edition

replaces

: ISO-4113 Calibrating oil

: VE4/9F2050R476 Injection pump : 0 460 494 317 Type number

Customer Part-No. :

Customer-specific information : IVECO-SOFIM Customer

: 8144.97 500 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer: 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Indicator setting Piston stroke mm: 1.0 Outlet : A

Injection pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1400 Charge press. hPa: 1000 Setting value mm: 5.80...6.20

Setting value

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1400 Speed Charge press hPa: 1000

Setting value bar: 6.10...6.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1200 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 64.50...65.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000S.: (3.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 40.00...41.00

Shutoff

electromagnet Volt: 12

Residual-Delivery Setting

Speed 1/min: 550

Del. quantity cm3/

1000s.: 1.00...5.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2400 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 31.00...37.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 50.00...74.00 mind 1000S.: 50.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1000 Speed Charge press hPa: 1000

cm3/Inj.-qty.

difference 1000s.: 20.50...26.50

Shutoff +	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
TD-travel dif.measurement	•
correttore anticipo iniezione (SV)	Overlow quantity at overflow valve:
1.Speed 1/min: 1000 +	•
Charge press hPa: 1000	· 1st speed 1/min: 500
TD-travel	Charge press. hPa: -
	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Overflow : 41.7083.40
· · · · · · · · · · · · · · · · · · ·	quantity cm3/10s: (26.7098.40)
Inspection pump test specifications	- 2nd speed 1/min: 2050
Test specifications in parentheses +	- Charge press. hPa: 1000
· · · · · · · · · · · · · · · · · · ·	- Shutoff
Timing-device characteristic:	- electromagnet Volt: 12
The state of the s	- Overflow : 55.60139.00
2nd speed 1/min: 1800	- quantity cm3/10s: (40.60153.00)
	- quarterly this too the form
	- Delivery-quant. and breakaway char.:
TD travel mm: 8.209.00	- Delivery quant. and breakaway char
mm: (7.709.10)	•
Shutoff	~
electromagnet Volt: 12	- 1nd speed 1/min: 600*
3rd speed 1/min: 1400	- Charge-air pressure-setting
Charge press hPa: 1000	- point hPa: 250
TD travel mm: 5.806.20	- LDA-stroke mm: 4.5
mm: (4.805.80)	- Shutoff
Shutoff	- electromagnet Volt: 12
	- Del. quantity cm3/: 50.0051.00
electromagnet Volt: 12	1000s (/2 00 53 00)
5th speed 1/min: 2050	1000s.: (48.0053.00) 2nd speed 1/min: 2750
Charge press. hPa: 1000	- Zna speed 1/mm: 2730
TD travel mm: 9.6010.40	- Charge press. hPa: 1000
mm: (9.3010.70)	- Shutoff
Shutoff	- electromagnet Volt: 12
electromagnet Volt: 12	- Del. quantity cm3/: 0.003.00
6th speed 1/min: 1000	- 1000s.: (0.003.00)
Charge press. hPa: 1000	- 3rd speed 1/min: 2600
TD travel mm: 2.603.40	- Charge press. hPa: 1000
mm: (1.903.30)	- Shutoff
	electromagnet Volt: 12
Shutoff 12	Del. quantity cm3/: 2.0010.30
electromagnet Volt: 12	1000s.: (2.0016.03)
1	
Supply-pump pressure characteristic:	5th speed 1/min: 2400
	- Charge press. hPa: 1000
1st speed 1/min: 600	- Shutoff
Charge press. hPa: 1000	electromagnet Volt: 12
Supply-pump	bel. quantity cm3/: 31.0037.00
pressure bar: 3.504.10	1000s.: (30.0038.00)
Shutoff	9th speed 1/min: 2050
electromagnet Volt: 12	Charge press. hPa: 1000
	Shutoff
Charge press. hPa: 1000	electromagnet Volt: 12
Supply-pump	Del. quantity cm3/: 64.0067.00
pressure bar: 6.106.70	1000s.: (63.3067.70)
Shutoff	10th speed 1/min: 1950
electromagnet Volt: 12	Charge press. hPa: 1000
3rd speed 1/min: 2050	- Shutoff
Charge press. hPa: 1000	electromagnet Volt: 12
Supply-pump	Del. quantity cm3/: 64.0067.00
pressure bar: 8.409.00	1000s.: (64.5067.50)
pressure par citoria/iuu	12th speed 1/min: 1200

Inj.-qty.dif.measurement: Charge press. hPe: 1000 Shutoff 1/min: 1000 1st speed electromagnet Volt: 12 Del. quyntity cm3/: 64.50...65.50 1000s.: (63.00...67.00) Charge press. hPa: 1000 Inj.-qty. cm3/ : 20.50...26.50 1/min: 500 difference 1000s.: (19.50...27.50) 18th speed Charge press. hPa: -Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 40.00...41.00 1000S.: (38.00...43.00) TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1000 Charge press. hPa: 1000 Mech. shutoff: TD-travel : 1.10...1.30 mm: (1.10...1.30) difference Electr. shutoff: Shutoff electromagnet Volt: 12 1/min: 425 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set) scarico) (ARF) Shutoff electromagnet volt: gaz d'échappement-ARF) Damper set qty.: Spacing mm: 12.0 LFG-setting: 1/min: 1000 solidale con carcassa: 1st speed Idle delivery: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.50...27.50 1000s.: (24.00...29.00) 1/min: 425 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.00...13.00 10005.: (8.00...14.00) Automatic starting fuel delivery: 1/min: 475 1/min: 200 1st speed 2nd speed Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 50.00...74.00 Del. quantity cm3/: 5.00...11.00 1000s.: (50.00...74.00) 1000s.: (5.00...11.00) 1/min: 350 2nd speed High Idle: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 36.D0...44.D0 1000s.: (36.D0...44.D0) 1/mi: 600 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 5.00...9.00 1/min: 100 1000s.: (4.00...10.00) 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 50.00...74.00 1000s.: (50.00...74.00) Residual: 1/arin: 550 1.Rotacao Shutoff electromagnet Volt: 12 Del. quantity cm3/: 1.00...5.00 Shutoff electromagnet: 1000s.: (0.00...6.00) Cut-in : 10.0 min voltage 1/min: 650 2nd speed : 12.0 Rated voltage Shutoff electromagnet Volt: 12 Mounting and assembly dimensions: Del. quantity cm3/: 0.00...3.00 Designation Load-dependent start of delivery:

LO4

K mm: KF mm: 5.6...6.0
MS mm: 1.1...1.5
LDA stroke mm: 4.5

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

Note inst. in remarks column

Test scheet

Edition : 10.04.92

replaces

: ISO-4113 Calibrating oil

: VE4/8F2600R284-1 Injection pump Type number : 9 460 620 005 Customer Part-No. : 897 040 8410

Customer-specific information : ISUZU Customer

: 4EC1-NA Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 40.00...46.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Lenath

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1250 **Speed**

Setting value mm: 2.70...3.10

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

L06

Setting value bar: 3.40...4.00

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1500 Speed

Del. quantity cm3/ 1000s.: 28.70...29.70

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/

1000s.: 9.10...13.10

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Full-load speed regulation

1/min: 2850 Speed

Del. quantity cm3/

1000s.: 13.90...19.90

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 25.00...65.00 mind 1000s.: 25.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed

cm3/Inj.-qty.

difference 1000s.: 5.50...8.50

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV) 1. Speed 1/min: 1250

TD-travel

mm: 0.20...1.30 difference

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2300 TO travel mn: 7.00...7.80 mm: (6.70...8.10) electromagnet Volt: 12 2nd speed 1/min: 1250 mm: 2.70...3.10 mm: (2.20...3.60) Delivery-quant. and breakaway char.: 1/min: 1500 1nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 28.70...29.70 Shutoff 1000s.: (26.90...31.50) 1/min: 2975 electromagnet Volt: 12 1/min: 620 3rd speed 3rd speed Shutoff mm: 0.10...0.90 TD travel electromagnet Volt: 12
Del. quantity cm3/: 0.00...9.00
1000s.: (0.00...9.00)
5th speed 1/min: 2850 mm: (0.00...1.20)Shutoff electromagnet Volt: 12 4th speed 1/min: 2000 TD travel mm: 5.70...6.50 Shutoff electromagnet Volt: 12 Del. quaritity cm3/: 13.90...19.90 1000s.: (12.90...20.90) mm: (5.40...6.80) Shutoff electromagnet Volt: 12 1/min: 1200 1/min: 1500 5th speed 8th speed mm: 3.70...4.30 mm: (3.30...4.70) TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 29.20...32.20 1000S.: (28.70...32.70) 9th speed 1/min: 2000 Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff 1/min: 2300 1st speed Supply-pump pressure bar: 6.00...6.60 11th speed Shutoff Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 2nd speed Supply-pump bar: 3.40...4.00 12th speed pressure Shutoff Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 28.90...31.90 1000s.: (27.40...33.40) electromagnet Volt: 12 1/min: 500 3rd speed Supply-pump bar: 1.60...2.20 pressure Mech. shutoff: Shutoff electromagnet Volt: 12 4th speed 1/min: 2000 Electr. shutoff: 4th speed Supply-pump bar: 5.20...5.80 1st speed 1/min: 400 pressure Del. quantity cm3/: 0.00...3.00 Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 12 1/min: 1500 Shutoff 5th speed electromagnet volt: -Supply-pump bar: 3.90...4.50 pressure Idle delivery: Shutoff electromagnet Volt: 12 1/min: 400 1st speed Shutoff Overlow quantity at overflow valve: 1/min: 1250 1st speed Shutoff electromagnet Volt: 12 : 83.00...127.00 Overflow 1/min: 650 cm3/10s: (68.00...142.00) 2nd speed quantity

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1250 1st speed Inj.-qty. cm3/ : 5.50...8.50 difference 1000s: (5.50...8.50) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): mm: (0.20...1.20)difference Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 500 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 24.00...36.00 1000S.: (24.00...36.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...65.00 1000s.: (25.00...65.00) Shutoff electromagnet: Cut-in : 10.0 min voltage Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 mm: 5.6...6.0 mm: 1.2...1.6 K KF MS Remarks:

Note inst. in remarks column

: OPE Test scheet : 09.04.92 Edition

replaces Calibrating oil : ISO-4113

: VE4/10F2200R365-1 Injection pump : 9 460 620 007 Type number Customer Part-No.: 897 040 8430

Customer-specific information : ISUZU Customer

: 4EE1-TC Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer: 40.00...46.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed Charge press. hPa: 1000

Setting value mm: 3.10...3.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed Charge press hPa: 1000

Setting value bar: 3.90...4.50

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Speed Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 51.30...52.30

Shutoff

electromagnet Volt: 12 1000s.: (2.5)

Full-load del. w/out charge press.:

1/min: 550 Speed

Del. quantity cm3/ 1000s.: 36.80...40.80

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 415 Speed

Del. quantity cm3/

1000s.: 8.20...12.20

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Full-load speed regulation

1/min: 2600 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 19.20...25.20

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 38.70...48.70

1000s.: 38.70 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1/min: 1250 Speed hPa: 1000 Charge press cm3/

Inj.-qty. difference 1000s.: 26.50...29.50

Shutoff electromagnet Volt: 12

Overlow quantity at overflow valve: TD-travel dif.measurement correttore anticipo iniezione (SV) 1.Speed 1/min: 1250 1/min: 1250 1st speed Charge press. hPa: 1000 Charge press TD-travel hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 83.0C...127.00 difference mm: 1.70...2.30 Shutoff cm3/10s: (68.00...142.00) electromagnet Volt: 12 quantity Inspection-pump test specifications Test specifications in parentheses Delivery-quant. and breakaway char.: 1nd speed 1/min: 1000 Timing-device characteristic: Charge-air pressure-setting point hPa: 340 1/min: 2250 hPa: 1000 2nd speed mm: 4.00 LDA-stroke Charge press TD travel mm: 7.20...8.00 Shutoff mm: (6.90...8.33) electromagnet Volt: 12 Del. quantity cm3/: 44.20...45.20 1000s.: (42.20...47.20) 3rd speed 1/min: 2850 Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Charge press hPa: 1000 TD travel ma: 3.10...3.50 electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) mm: (2.60...4.00) Shutoff electromagnet Volt: 12 4th speed 1/min: 600 charge press. hPa: 1000 Shutoff hPa: 1000 Charge press mm: 0.30...1.10 mm: (0.00...1.40) TD travel electromagnet Volt: 12
Del. quantity cm3/: 19.20...25.20
1000S.: (17.70...26.70)
8th speed 1/min: 1500
Charge press. hFa: 1000
Shutoff Shutoff electromagnet Volt: 12 5th speed 1/min: 2000 Charge press. hPa: 1003 mm: 6.10...6.90 TD travel electromagnet Volt: 12 Del. quantity cm3/: 49.00...52.00 1000s.: (48.20...52.80) mm: (5.80...7.20) Shutoff electromagnet Volt: 12 1/min: 1500 9th speed Charge press. hPa: -Shutoff Supply-pump pressure characteristic: 1st speed 1/min: 2250 Charge press. hPa: 1000 Supply-pump bar: 6.50...7.10 pressure Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 49.60...52.60
1000S.: (48.80...53.40)
12th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff Supply-pump bar: 3.90...4.50 pressure Shutoff electromagnet Volt: 12 3rd speed 1/min: 600 electromagnet Volt: 12 Del. quyntity cm3/: 51.30...52.30 1000s.: (49.50...54.10) Charge press. hPa: 1000 Supply-pump pressure bar: 2.10. 1/min: 550 bar: 2.10...2.70 13th speed Charge press. hPa: -Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12

Del. quantity cm3/: 36.80...40.80 1000s.: (35.80...41.80)

Mech. shutoff:

Electr. shutoff:

1/min: 415 1st speed

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 415

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 8.20...12.20

1000s.: (6.20...14.20) cm3/: 2.5

Dispersion

1000s.: (3.0) 1/min: 550

2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00

1000s.: (0.00...5.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 1st speed

Charge press. hPa: 1000 Inj.-qty. cm3/ : 26.50...29.50 cifference 1000s.: (26.50...29.50)

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo injezione (SV):

1/min: 1250 1st speed Charge press. hPa: 1000

: 1.70...2.30 TD-travel mm: (1.70...2.30) difference

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1/min: 150 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 29.00...49.00 1000s.: (29.00...49.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity_cm3/: 28.70...48.70

1000s.: (28.70...48.70)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 KF mm: 5.6...6.0 MS mm: 0.7...1.1 mm: 4.0 LDA stroke

Remarks:

* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No. ..303

L11

Note remarks

Test sheet

: KHD

Edition

: 30.04.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 646 266AB

Injection pump

Pump designation : PE6A95D41OLS2587

EP type number

: 0 410 696 983

Governor

Governor design. : RQV300...1150AB1088L

: 0 420 212 115 Governer no.

Customer-spec. information

Customer

: KHD

Engine

: F6L413 FW

1st version kW

: 96.0

Rated speed

: 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Operiina

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 1.50...1.60

: (1.45...1.65)

Rack travel in mm : 9.00...12.00

Phasing

Firing order

: 0-75-120-195-240-315

: 1-6-5-4-3-2

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rom: 1150

Rack travel in mm : 8.30...8.40

Del.guantity cm3/: 7.4...7.6

100 s: (7.2...7.8)

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 1.1...1.7

100 s: (0.8...1.9)

Spread

cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.10...1.60

travel mm

rpm : 390 2nd speed

travel mm

: 2.20...2.60

3rd speed

rpm : 1195

travel mm

: 8.70...9.10

4th speed travel mm

: 1245 rpm

: 9.40...9.80

GUIDE SLEEVE POSITION Control-Lever position

Degree: -1

rpm : 1170

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1150

Del.quantity

: 74.0...76.0

1000 : (72.0...78.0)

: 3.50

Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: ?

Testing:

1st rack travel in: 7.30 Speed rpm : 1190...1200

2nd rack travel in: 4.00

rpm : 1232...1262

4th rack travel in: 1300

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: ?

Testing:

: 200 Speed rpm Minimum rack trave: 7.50 rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

rpm : 300...420 Speed

TORQUE CONTROL

Dimension a mm : 0.90

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 8.30...8.40

2nd speed rpm : 800

Rack travel in m: 9.20...9.40

3rd speed rpm : 1000

Rack travel in m: 8.70...9.00

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800 Del.quantity cm3/: 77.0...80.0 1000 s: (74.5...82.5)

rpm : 100 Speed

Del.quantity cm3/: 66.0...69.0 *

1000 s: (63.5...71.5)

RACK STOP ADJUSTMENT

rpm : 500 Speed

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.30

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

Remarks:

* Set warm-start quantity at excess-fuel stop for starting on governor housing

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

Below-ground operation

Note remarks

Test sheet

: KHD : 30.04.92 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 400 646 266AC

Injection pump

Pump designation : PE6A95D410LS2587 : 0 410 696 983

EP type number

Governor

: RQV300...1150AB1088L Governor design. : 0 420 212 115 Governer no.

Customer-spec. information : KHD Customer

: F6L413 FW Engine

1st version kW : 75.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 014 Test Lines

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 1.50...1.60 Prestroke mm

: (1.45...1.65) Rack travel in mm : 9.00...12.00

: 1-6-5-4-3-2 Firing order

: 0-75-120-195-240-315 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rom: 1150

Rack travel in mm : 7.40...7.50

Del.quantity cm3/: 6.2...6.4

100 s: (6.0, ...6.6)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.1...1.7

100 s: (0.8...1.9)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.10...1.60 travel mm

rpm : 390 2nd speed : 2.20...2.60 travel mm

rpm : 1195 3rd speed

travel mm : 8.70...9.10 rpm : 1245 4th speed

: 9.40...9.80 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1170

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

: 62.0...64.0 Del.quantity

1000 : (60.0...66.0) : 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: ?

Testina:

1st rack travel in: 6.40

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

rpm : 1215...1245 Speed

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: ?

Testing:

Speed rpm : 200 Minimum rack trave: 7.50

Speed rpm : 300 Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

rpm : 300...420 Speed

TORQUE CONTROL

Dimension a mm : 0.90

Torque control curve - 1st version

1st speed rpm : 1150 Rack travel in m: 7.40...7.50

rpm : 800 2nd speed

Rack travel in m: 8.30...8.50

3rd speed rpm : 1000 Rack travel in m: 7.60...7.90

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800 Del.quantity cm3/ : 65.0...68.0

1000 s: (62.5...70.5)

: 100 rpm

Del.quantity cm3/: 66.0...69.0 *

1000 s: (63.5...71.5)

RACK STOP ADJUSTMENT

rom : 500 Speed

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 6.40

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

Remarks:

* Set warm-start quantity at excess-fuel stop for starting on governor housing

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

Below-ground operation

Note remarks

Test sheet Edition

: KHD : 30.04.92

Replaces

Test oil

: TSO-4113

Combination no.

: 0 400 648 148

Injection pump

Pump designation : PE8A95D410LS2608

EP type number Governor

: 0 410 698 988

Governor design. : RQV450...1150AB1268L

Governer no.

: 0 420 212 243

Customer

Customer-spec. information : KHD

Engine

: F8L413F

1st version kW

: 165.0

Rated speed

: 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Openina

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order

: 1- 8- 7- 2- 6- 5-4- 3

Phasing

: 0-45-90-135-180-225-

270-315 : 0.50 (0.75)

Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed

Spread

rpm: 800

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 9.7...9.9

100 s: (9.5...10.1)

cm3 : 0.3

100 s: (0.6)

rpni : 450.0 2nd speed Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 1.1...1.7 100 s: (0.8...1.9)

Spread

cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 400

travel mm

: 0.30...0.60

2nd speed

rpm : 750

travel mm

: 3.50...3.80 : 1050

3rd speed travel nm rpm

: 6.70...6.90

4th speed rpm : 1200

travel mm

: 8.90...9.40

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

Speed

Speed

Del.quantity

rpm : 800

: 97.0...99.0

1000 : (95.0...101.0)

cm3

: 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 60...63

Testing:

1st rack travel in: 8.50

Speed rpm : 1170...1180 2nd rack travel in: 4.00

Speed rpm : 1190...1220 4th rack travel in: 1300

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 6...14 rpm : 450

Speed

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

rpm : 530...690 Speed

TORQUE CONTROL

Dimension a mm : 1.00

Torque control curve - 1st version

1st speed rpm : 800

Rack travel in m: 10.50...10.60

2nd speed rpm : 1130 Rack travel in m: 9.50...9.70

3rd speed rpm : 1050 Rack travel in m: 9.80...10.10

START CUT-OUT

1/min: 370 (390) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 1130 Speed

Del.quantity cm3/: 86.5...89.5 1000 s: (84.0...92.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.50

rpm : 1170...1180 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

Remarks:

APPLICATION

Combine-harvester

L17

Note remarks

: MB 4,0 j 1 Test sheet : 03.04.92 Edition : 11.91 Replaces : ISO-4113 Test oil

: 0 400 844 096 Combination no.

Injection pump

Pump designation : PES4A95D410RS2809 : 0 410 894 993 EP type number

Governor

Governor design. : RQV300...1400AB1055-

23L

: 0 420 212 227 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: OM 364 Engine

1st version kW : 65.0 : 2800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Lenath mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.20...3.30 : (3.15...3.35) Prestroke mm

Rack travel in mm : 9.00...12.00 : 1-3-4-2 Firing order

: 0-90-180-270 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 9.90...10.00

Del.quantity cm3/: 6.4...6.6

100 s: (6.2...6.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 8.5...8.7 Del.quantity cm3/: 0.8...1.2

100 s: (0.5...1.4)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

300 1st speed rpm :

0.80...1.30 travel mm

500 2nd speed rpm

2.30...2.80 travel mm

750 3rd speed rom

: 4.10...4.30 travel mm

1500 4th speed rpm

: 8.50...8.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1450 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

: 64.5...66.5 Del.quantity 1000 : (62.5...68.5)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 111...119

Testina:

1st rack travel in: 8.90

rpm : 1450...1460 Speed

2nd rack travel in: 4.00

rpm : 1535...1565 Speed

4th rack travel in: 1670

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 73...81

Testing:

: 100 Speed nom Minimum rack trave: 9.60 Speed nom

Rack travel in mm : 8.50...8.70

CONSTANT REGULATION

rpm : 550...700 Speed

TORQUE CONTROL

Dimension a mm : 1.20

Torque control curve - 1st version

rpm : 1400 1st speed

Rack travel in m: 9.90...10.00

2nd speed rpm : 400

Rack travel in m: 11.10...11.20

3rd speed rpm : 630

Rack travel in m: 10.90...11.20 th speed rpm : 925

4th speed

Rack travel in m: 10.40...10.70

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 400 Speed rpm

Del.quantity cm3/: 49.0...53.0 1000 s: (46.5...55.5)

Speed rpm : 630 Del.quantity cm3/ : 49.0...53.0 1000 s: (46.5...55.5)

Speed rpm : 925 Del.quantity cm3/ : 59.0...63.0

1000 s: (56.5...65.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.90

rpm : 1450...1460 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0)

Rack travel in mm: 14.40...14.80

Remarks:

L19

Note remarks

Test sheet Edition 31.01.92

Replaces

: ISO-4113 Test oil

: 0 400 844 098 Combination no.

Injection pump

Pump designation: PES4A95D410RS2809

EP type number : 0 410 894 993

Governor

: RQV300...1400AB1065-Governor design.

28L

: 0 420 212 242 Governer no.

Customer-spec, information

: MERCEDES-BENZ Customer

: OM 364 Engine

: 65.0 1st version kW : 2800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 3.20...3.30 : (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1-3-4-2

: 0-20-180-270 Phasing

Tolerance $+ - \cdot : 0.50 (0.75)$

BASIC SETTING

rpm: 1400 1st speed

Rack travel in mm : 9.90...10.00

Del.quantity cm3/: 6.5...6.6

100 s: (6.3...6.8)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm: 8.4...8.6

Del.quantity cm3/: 0.8...1.2

100 s: (0.5...1.4)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.80...1.30 travel mm

rpm : 500 2nd speed

: 2.30...2,80 travel ma

: 750 3rd speed rpm

: 4.10...4.30 travel mm

: 1500 4th speed rom

: 8.50...8.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1450 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

: 65.0...66.0 Del.quantity

1000 : (63.0...68.0)

: 3,50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 111...119 Testing: 1st rack travel in: 8.90 rpm : 1450...1460 Speed 2nd rack travel in: 4.00 rpm : 1535...1565 Speed 4th rack travel in: 1670 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 73...81 Testina: : 100 Speed rpm Minimum rack trave: 9.60 Speed rpm: 300 Rack travel in mm : 8.40...8.60 CONSTANT REGULATION rom : 550...700 Speed TORQUE CONTROL Dimension a mm : 0.80 Torque control curve - 1st version 1st speed rpm : 1400 Rack travel in m: 9.90...10.00 2nd speed rpm : 400 Rack travel in m: 10.70...10.90 3rd speed rpm : 670

Rack travel in m: 10.50...10.70 th speed rpm : 1060 4th speed Rack travel in m: 10.10...10.40

START CUT-OUT 1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 400 Del.quantity cm3/ : 48.0...51.0 1000 s: (45.5...53.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.90 rpm : 1450...1460 Speed

STARTING FUEL DELIVERY

Remarks:

Note remarks

Test sheet : MB 6,0 j 4 Edition : 03.04.92

Replaces : 03.91

Test oil : ISO-4113

Combination no. : 0 400 846 591

Injection pump

Pump designation : PES6A95D410RS2797 EP type number : 0 410 896 900

Governor

Governor design. : RQV300...1400AB1065-

22L

Governer no. : 0 420 212 226

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM 366

1st version kW : 97.0 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening |

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30

: (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \cdot : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 10.10...10.20

Del.quantity cm3/ : 6.1...6.3

100 s: (5.9...6.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 8.9...9.1

Del.quantity cm3/ : 0.8...1.2

100 s: (0.5...1.4) Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm: 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1400

Del.quantity : 61.0...63.0

1000 : (59.0...65.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 109...117

Testing:

1st rack travel in: 9.10

rpm : 1450...1460 Speed

2nd rack travel in: 4.00

rpm : 1540...1570 Speed

4th rack travel in: 1670

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 72...80

Testing:

Speed rpm Minimum rack trave: 10.50

: 300 Speed PDM

Rack travel in mm : 8.90...9.10

CONSTANT REGULATION

rpm : 500...650 Speed

TORQUE CONTROL

Dimension a mm : 1.20

Torque control curve - 1st version

1st speed rpm : 1400

Rack travel in m: 10.10...10.20

rpm : 400 2nd speed

Rack travel in m: 11.30...11.60

3rd speed rpm : 630

Rack travel in m: 10.90...11.20

4th speed rpm : 925

Rack travel in m: 10.40...10.70

START CUT-OUT

1/min: 240 (260) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 400 Speed rpm -

Del.quantity cm3/: 49.0...52.0 1000 s: (46.5...54.5)

Speed rpm : 630 Del.quantity cm3/ : 49.0...53.0 1000 s: (46.5...55.5)

rpm : 925 Speed

Del.quantity cm3/: 57.0...61.0 1000 s: (54.5...63.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

rpm : 1450...1460 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 bel.quantity cm3/ : 78.0...88.0

1000 s: (75.0...91.0)

Rack travel in mm: 14.60...15.00

Remarks:

Set shutoff stop to contact at 3.0...3.5 mm control-rod travel.

Note remarks

Test sheet : IHC 7,6 y 2
Edition : 13.03.92
Peplaces : 11.91
Test oil : ISO-4113

Combination no. : 0 400 846 604

Injection pump

Fump designation : PES6A95D32ORS2779 EP type number : 0 410 896 903

Governor

Governor design.: RQV350...1350AB1248-

2R

Governer no. : 0 420 213 126

Customer-spec. information Customer : NAVISTAR

Engine : DT 360

1st version kW : 127.0 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

assembly : 1 688 901 110

Opening

pressure, bar : 250...253

Orifice plate

diameter mm : 0,5

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55

: (2.40...2.60)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1350

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 7.9...8.1

100 s: (7.7...8.3)

Spread cm3:0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.7...2.1

100 s: (1.4...2.3)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm: 1350

travel mm : 7.30...7.50

2nd speed rpm: 1460

travel mm : 8.10...8.50

3rd speed rpm: 550

travel mm : 3.10...3.70

4th speed rpm: 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1350 Aneroid pressure h: 900

Del.quantity : 79.5...81.5 1000 : (77.5...83.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 44...52

Testing:

1st rack travel in: 10.90

rpm : 1390...1420 Speed

2nd rack travel in: 4.00

rpm : 1525...1535 Speed

4th rack travel in: 1625

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 11...19

Testing:

: 100 Speed rom Minimum rack trave: 9.00

rpm

Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

: 350...500 Speed rpm

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rpm

hPa : 900 Pressure

: 11.90...12.00 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.90...10.10
2nd pressure hPa : 110
Rack travel in m: 10.40...10.50
3rd pressure hPa : 300
Rack travel in m: 11.50...11.90

START CUT-OUT

1/min : 270 (280) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 71.0...75.0

1000 s: (69.0...77.0)

BREAKAWAY

L25

1st version

1mm rack travel less than

full load rack tr: 10.90

rpm : 1390...1420 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm: 16.20...17.00

LOW IDLE

: 350 Speed rpm

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 17.0...21.0 1000 s: (14.5...23.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: NAVISTAR #1819273C91

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of

delivery of cylinder 1

Note remarks

Test sheet : IHC
Edition : 30.04.92
Replaces : 03.92
Test oil : ISO-4113

Combination no. : 0 400 846 606

Injection pump

Pump designation : PES6A95D32ORS2779 EP type number : 0 410 896 903

Governor

Governor design. : RQV350...1200AB1236-

8R

Governer no. : 0 420 213 127

Customer-spec. information Customer : NAVISTAR

Engine : DT 466

1st version kW : 145.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

assembly : 1 688 901 110

Opening.

pressure, bar : 250...253

Orifice plate

diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6 00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.65...2.75 : (2.60...2.80)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 13.10...13.20

Del.quantity cm3/: 9.7...9.9

100 s: (9.5...10.1)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.7...2.1

100 s: (1.5...2.3)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400

travel mm : 8.60...9.00 nd speed rpm : 1250

2nd speed rpm : 1250 travel mm : 7.30...7.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1200 Aneroid pressure h: 900

Del.quantity : 97.0...99.0

1000 : (95.0...101.0) cm3 : 3.50

Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version Control Lever

position degrees: 44...52

Testina:

1st rack travel in: 12.10

rpm : 1240...1270 Speed

2nd rack travel in: 4.00

Speed rpm : 1385...1395 4th rack travel in: 1500

rpm : 0.00...1.00Speed

LOW IDLE 1

Control Lever

position degrees: 11...19

Setting point w/out bumper spring

rpm : 350 Speed

Testing:

rpm : 100 Speed

Minimum rack trave: 9.00

Speed rpm : 350 Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

rpm : 350...500 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm

hPa : 900 Pressure

: 13.10...13.20 Rack travel mmi

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.90...10.10

2nd pressure hPa : 225 Rack travel in m: 10.90...11.00

3rd pressure hPa : 460

Rack travel in m: 12.30...12.70

START CUT-OUT

1/min: 270 (280) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

: 500 rpm Speed

Del.quantity cm3/: 74.5...78.5 1000 s: (72.5...80.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10

rpm : 1240...1270 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...170.0

1000 s: (125.0...175.0)

Rack travel in mm : 16.20...17.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del.quantity cm3/ : 17.0...21.0
1000 s: (15.0...23.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: NAVISTAR #1819325C91

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of

delivery of cylinder 1

Note remarks

Test sheet : IHC

: 30.04.92 Edition

Replaces

: ISO-4113 Test oil

: 0 400 846 609 Combination no.

Injection pump

Pump designation : PES6A95D32ORS2779

EP type number : 0 410 896 903

Governor

: RQV350...1350AB1248-Governor design.

: 0 420 213 128 Governer no.

Customer-spec. information Customer : NAVISTAR

: DTA-360 Engine

: 127.0 1st version kW Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 110 assembly

Opening

: 250...253 pressure, bar

Orifice plate

diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm

: 2.45...2.55

: (2.40...2.60)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing

: 0-50-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1350

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 7.3...7.5

100 s: (7.1...7.7)

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 5.9...6.1

Del.quantity cm3/: 1.7...2.1

100 s: (1.4...2.3)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed

: 7.30...7.50 travel mm

2nd speed 1460 rom

: 8.10...8.50 travel mm

: 550 3rd speed rpm

travel mm : 3.10...3.70

: 350 4th speed rpm

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1350

Aneroid pressure h: 900

Del.quantity

: 73.5...75.5 : (71.5...77.5) 1000

: 3.50

cm3 Spread

1000 : (6.00)

RATED SPEED

L28

1st version Control lever

position degrees: 43...51

Testing:

1st rack travel in: 10.60

rpm : 1410...1430 Speed

2nd rack travel in: 4.00

rpm : 1525...1535 Speed

4th rack travel in: 1625

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control Lever

position degrees: 12...20

Testing:

: 100 Speed mqn: Minimum rack trave: 9.00 rpm

Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

: 350...500 Speed rom

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed man hPa : 900 Pressure

: 11.60...11.70 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.60

2nd pressure hPa : 200
Rack travel in m: 10.10...10.20
3rd pressure hPa : 380
Rack travel in m: 10.90...11.30

START CUT-OUT

1/min: 270 (280) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 61.0...65.0

1000 s: (59.0...67.0)

BREAKAWAY

M01

1st version 1mm rack travel less than

full load rack tr: 10.60 rpm : 1410...1430 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...170.0 1000 s: (125.0...175.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm3/: 17.0...21.0

1000 s: (14.5...23.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

: NAVISTER #1819884C91

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of

delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet

: CUM 8,3 L 1 : 02.05.89 Edition : 20.12.88 Replaces : ISO-4113 Test oil

Combination no. : 0 400 866 129

Injection pump

Pump designation : PES6A100D320/3RS2763 EP type number : 0 410 806 006

Governor

: RSV400...1050A0C2190 Governor design.

-27R

: 0 420 233 225 Governer no.

Customer-spec. information Customer : C.D.C.

: 6CT 8.3 Engine

: 111.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.70...9.80

Del.quantity cm3/: 8.5...8.7

100 s: (8.3...8.9)

cm3 : 0.4Spread

100 s: (0.6)

rpm : 400.02nd speed Rack travel in mm: 5.3...5.5 Del.guantity cm3/: 1.1...1.5 100 s: (0.9...1.8)

cm3 : 0.6Spread

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 85.0...87.0 Del.quantity 1000 : (83.0...89.0)

: 4.00 cm3

Spread 1000 : (6.50)

RATED SPEED

1st version Control lever

position degrees: 50...58

Testing:

1st rack travel in: 8.70 rpm : 1145...1155 Speed 2nd rack travel in: 4.00

Speed rpm : 1205...1235 3rd rack travel in: 4.00

Speed rpm: 1210...1240 4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 30...38

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 4.9

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.30...5.50 Rack travel in mm : 2.00

rpm : 470...530 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9.70...9.80

2nd speed rpm : 750 Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 750 rpm

Del.quantity cm3/: 94.0...98.0 1000 s: (92.0...100.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.70

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 150.0...170.0 1000 s: (145.0...175.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.30...5.50

M03

Del.quantity cm3/: 11.5...15.5 1000 s: (9.0...18.0)

cm3 : 6.00 Spread

1000 s: (8.00)

Remarks:

: C.D.C. # 3912534

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Note remarks

Test sheet

: 03.04.92 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 400 874 252

Injection pump

Pump designation : PES4A95D41ORS2809-1

: 0 410 894 992 EP type number

Governor

: RSV350...1400A0C2006 Governor design.

-7L

: 0 420 232 575 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M364 Engine

: 65.0 1st version kW : 2800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.20...3.30 : (3.15...3.35) Prestroke mm

Rack travel in mm : 9.00...12.00 : 1-3-4-2

Firing order

: 0-90-180-270 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 13801st speed

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 6.4...6.6

100 s: (6.2...6.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 8.0...8.4

Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1380 Speed

: 64.5...66.5 Del.quantity 1000 : (62.5...68.5)

: 3.50 Spread cm3: (6.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 109...117

Testing:

1st rack travel in: 9.40

rpm : 1433...1438 Speed

2nd rack travel in: 4.00

rpm : 1491...1508 Speed

4th rack travel in: 1575

: 0.30...1.70 Speed rpm

LOW IDLE 1

Control lever position degrees: 74...82 Setting point w/out bumper spring rpm : 350 Speed Rack travel in am : 8.2 Testing: : 100 Speed rpm Minimum rack trave: 19.50 : 350 Speed COM Rack travel in mm: 8.00...8.40 Rack travel in mm : 2.00 : 490...550 Speed man SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1380 Rack travel in m: 10.40...10.50 2nd speed rpm : 400 Rack travel in m: 11.70...11.80 3rd speed rpm : 900 Rack travel in m: 11.10...11.30 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 400 Del.quantity cm3/ : 48.0...51.0 1000 s: (45.5...53.5) Spread cm3 : -1000 s: (5.00) STARTING FUEL DELIVERY : 100 rpm Speed Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm : 16.30...16.70 LOW IDLE Speed rpm : 350 Rack travel in mm : 8.00...8.40 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) : 3.50 Spread cm3 1000 s: (5.50) Remarks:

M05

Note remarks

: DEE 7,6 h11 Test sheet : 07.04.89 Edition : 15.6.88 Replaces

: ISO-4113 Test oil

Combination no. : 0 400 876 347

Injection pump

Pump designation : PES6A100D410RS2676

: 9 410 230 023 EP type number

Governor

Governor design. : RSV600...1100A2C2161

-5L

: 0 420 232 495 Governer no.

Customer-spec. information : JOHN DEERE Customer

: 6466AZ-02 Engine

: 130.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.45...2.55 Prestroke mm : (2.40...2.60)

Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.10...10.20

Del.quantity cm3/: 11.1...11.3

100 s: (10.9...11.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 600.0 2nd speed Rack travel in mm: 4.2...4.4 Del.quantity cm3/: 1.1...1.5

100 s: (0.8...1.7)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Aneroid pressure h: 700

: 111.0...113.0 Del.quantity

1000 : (109.0...115.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

MO6

restina:

1st rack travel in: 9.10

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

Speed rpm : 1195...1205 4th rack travel in: 1250

rom : 0.30...1.40Speed

LOW IDLE 1

Control lever

position degrees: 25...33

Setting point w/out bumper spring

rpm : 600 Rack travel in mm: 3.8

Testing:

rpm : 100 Speed

Minimum rack trave: 19.00

rpm : 600

Rack travel in mm : 4.20...4.40

Rack travel in mm: 2.00

: 670...730 Speed rom

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 10.10...10.20

2nd speed rpm : 950 Rack travel in m: 10.70...10.90

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 95 Pressure

: 9.00...9.10 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 8.20...8.40

2nd pressure hPa : 145

Rack travel in m: 9.80...10.20

3rd pressure hPa : 700

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

: 950 rpm

Del.quantity cm3/: 119.0...122.0 1000 s: (116.5...124.5)

Aneroid pressure h: -

Speed rpm

M07

Del.quantity cm3/: 68.0...72.0

1000 s: (66.0...74.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 190.0...210.0 1000 s: (185.0...215.0)

LOW IDLE

rpm : 600 Speed

Rack travel in mm : 4.20...4.40

Del.quantity cm3/: 11.0...15.0 1000 s: (8.5...17.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

: JOHN DEERE # RE32396

Setting without torque-control spring retainer with 1 mm control-rod travel less. Raising of full-load delivery with torque-control spring retainer to 10.1 mm control-rod travel.

Start-of-delivery mark = 15.5° after start of delivery cyl. 1.

APPLICATION

Tractor (tractor engines)

Note remarks

: DEE 7,6 h15 : 17.05.90 Test sheet Edition : 2.5.90 Replaces

Test oil : ISO-4113

: 0 400 876 371 Combination no.

Injection punp

Pump designation : PES6A1000410RS2676-1

: 9 410 230 024 EP type number

Governor

: RSV450...1050A0C2204 Governor design.

~6L

: 0 420 232 539 Governer no.

Customer-spec. information

: JOHN DEERE Customer

: 6466AT13 Engine

: 120.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.45...2.55 Prestroke mm : (2.40...2.60)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm : 1050 1st speed

Rack travel in mm : 10.10...10.20

Del.quantity cm3/: 10.1...10.3

100 s: (9.9...10.5)

cm3 : 0.4Spread

100 s: (0.6)

rpm : 450.0 2nd speed Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.7...2.1

100 s: (1.5...2.3)

cm3 : 0.6Spread 100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 101.5...103.5 Del.quantity 1000 : (99.5...105.5)

: 4.00 Spread cm3

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 35...43

Testina:

80M

1st rack travel in: 9.10

npm : 1095...1105 Speed

2nd rack travel in: 4.00

rpm : 1180...1190 Speed

3rd rack travel in: 4.00 Speed rpm : 1185...1215 4th rack travel in: 4350

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control Lever

position degrees: 19...27

Setting point w/out bumper spring

rpm : 450 Speed Rack travel in mm: 5.0

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 rpm : 450

Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 10.10...10.20

2nd speed rpm : 650

Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 650 Speed

Del.quantity cm3/: 112.0...116.0 1000 s: (110.0...118.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 190.0...210.0 1000 s: (185.0...215.0)

LOW IDLE

Speed rpm : 450 Rack travel in mm : 5.40...5.60

Del.quantity cm3/: 17.5...21.5

1000 s: (15.5...23.5)

cm3 : 6.00Spread 1000 s: (8.00)

Remarks:

: JOHN DEERE # RE44344

Start-of-delivery mark at control-rod travel 10.5 mm and 15° after start of

delivery.

Starting/full-load transition speed from holding magnet = 450 1/min.

APPLICATION

Excavator

Note remarks

Test sheet

: DEE

Edition

: 13.03.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 400 876 395

Injection pump

Pump designation : PES6A100D410RS2676

EP type number

: 9 410 230 023

Governor

Governor design.

: RSV425...1100A2C2161

-1L

Governer no.

: 9 420 234 133

Customer-spec. information

Customer

: JOHN DEERE

Engine

: 6466T

1st version kW

: 120.0

Rated speed

: 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 101

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test Lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

M10

Prestroke mm : 2.45...2.55 : (2.40...2.60)
Rack travel in mm : 10.50

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1100

Rack travel in mm : 9.40...9.50

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

Spread

cm3 : 0.4

100 s: (0.6)

rom: 425.0

Rack travel in mm : 5.3...5.5 Del.quantity cm3/: 2.0...2.4

100 s: (1.8...2.6)

Spread

2nd speed

cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Spread

rpm : 1100

Aneroid pressure h: 700 : 98.5...100.5 Del.quantity

cm3

1000 : (96.5...102.5)

: 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testina:

1st rack travel in: 8.40

: 1145...1155 Speed rpm

2nd rack travel in: 4.00

rpm : 1205...1215 Speed

3rd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 24...32

Setting point w/out bumper spring

rpm : 425 Rack travel in mm: 4.9

Testing:

rpm ; 100 Speed

Minimum rack trave: 19.00 rpm : 425

Rack travel in mm : 5.30...5.50

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9.40...9.40

2nd speed rpm : 750

Rack travel in m: 10.60...10.89

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 hPa : 700 Pressure

: 10.60...10.80 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.10...9.30

2nd pressure hPa : 80

Rack travel in m: 9.40...9.80

3rd pressure hPa : 175

Rack travel in m: 10.30...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

rpm_: 750 Speed

Del.quantity cm3/: 116.0...119.0 1000 s: (114.0...121.0)

Aneroid pressure h: -

rom : 500 Speed

Del.quantity cm3/: 86.0...90.0 1000 s: (84.0...92.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 190.0...210.0 1000 s: (185.0...215.0)

LOW IDLE

rpm : 425 Speed

Rack travel in mm: 5.30...5.50 bel.quantity cm3/: 20.5...24.5 1000 s: (18.5...26.5)

cm3 : 6.00Spread

1000 s: (8.00)

Remarks:

: JOHN DEERE ₩ RE23746

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark = 15.5° after start of delivery cyl. 1.

Note remarks

: DAF 11.6 1 : 18.12.91 Test sheet Edition : 10.85 Replaces

: ISO-4113 Test oil

: 0 401 846 512 Combination no.

Injection pump

Pump designation : PE6P120A320RS415-1

: 0 411 826 123 EP type number

Governor

Governor design. : RQ250/1100PA417R

: 0 421 801 084 Governer no.

Customer-spec. information : DAF Customer

Engine : DKX 1160

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening .

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 067 Test Lines

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm : 11.60...11.70

Del. quantity cm3/: 18.7...18.9

100 s: (18.4...19.2)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 250.0 2nd speed Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 700

Speed Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850 Aneroid pressure h: 700

: 187.0...189.0 Del.quantity

1000 : (184.0...192.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm: 16.0

Testing:

1st rack travel in: 10.60

rpm : 1125...1140 Speed

2nd rack travel in: 4.00

rpm : 1190...1220 Speed

4th rack travel in: 1300

rpm : 0.00...1.00Speed

M12

LOW IDLE 1

Setting point w/cut bumper spring

rom : 250 Rack travel in mm: 6.5

Testina:

rpm : 100 Speed Minimum rack trave: 7.40 Speed rpm : 250

Rack travel in mm: 6.40...6.60 Rack travel in mm: 2.00

: 450...490 Speed man

TORQUE CONTROL

Dimension a mm : 0.55

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 12.60...12.70 2nd speed rpm : 1080

Rack travel in m: 12.50...12.70

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 600 Speed hPa : 700 Pressure

Rack travel mm : 11.60...11.70

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 10.30...10.50

2nd pressure hPa : 300 Rack travel in m: 11.30...11.40

3rd pressure hPa : 250

Rack travel in m: 10.60...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 600 Speed

Del.quantity cm3/: 140.0...142.0

1000 s: (137.0...145.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60

rpm : 1125...1140 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 305.0...345.0

1000 s: (305.0...345.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250 Rack travel in mm : 6.40...6.60

Remarks:

Note remarks

: STE 9,7 f 1 : 24.02.89 Test sheet Edition

Replaces

: ISO-4113 Test oil

: 0 401 846 554 Combination no.

Injection pump

Pump designation : PE6P110A720RS516 EP type number : 0 411 816 176

Governor

Governor design. : RQ300/1100PA412-2

: 0 421 801 435 Governer no.

Customer-spec. information : STEYR Customer

Engine : WD615.64

: 175.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

M14

: 1-5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. ro. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 14.2...14.4

100 s: (13.9...14.7)

cm3 : 0.4Spread

100 s: (0.7)

Del.quantity cm3/: 1.9...2.4

100 s: (1.6...2.6)

cm3 : 0.4 Spread 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 900

: 142.0...144.0 Del.quantity 1000 : (139.0...147.0)

: 4.00 cm3 Spread

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed : 600 rpm Rack travel in mm: 20.0

Testing:

1st rack travel in: 13.40

rpm : 1145...1160 Speed

2nd rack travel in: 4.00

rpm : 1245...1275 Speed

4th rack travel in: 1400

rpm : 0.00...1.00Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.5

Testing:

rpm : 100 Speed Minimum rack trave: 8.00 : 300 rpm

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00 rom : 400...440 Speed

TORQUE CONTROL

Dimension a mm : 0.25

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 14.40...14.50

2nd speed rpm : 700

Rack travel in m: 15.60...15.80

3rd speed rpm : 1000

Rack travel in m: 14.60...14.80

4th speed rpm : 860 Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rom hPa : 900 Pressure

: 15.60...15.80 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 12.90...13.10

2nd pressure hPa : 575
Rack travel in m: 15.00...15.10
3rd pressure hPa : 310

Rack travel in m: 13.60...13.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 700
Del.quantity cm3/ : 160.0...164.0
1000 s: (157.0...167.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 116.0...118.0

1000 s: (113.0...121.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40

rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 175.0...195.0 1000 s: (171.0...199.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 19.0...24.0

1000 s: (16.5...26.5)

cm3 : 4.50Spread

1000 s: (7.50)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

Note remarks

: VOL 12,2 a1 : 29.04.91 Test sheet Edition : 02.10.89 Replaces : ISO-4113 Test oil

: 0 401 846 826 Combination no.

Injection pump

Pump designation : PE6P120A320RS3178 : 0 411 826 752 EP type number

Governor

: RQV250...1025PA657-Governor design.

10

: 0 421 813 567 Governer no.

Customer-spec. information Customer : VOLVO

: TD122FS Engine

: 287.0 1st version kW : 2050 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.60...3.70 Prestroke mm : (3.55...3.75)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm : 700 1st speed

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 25.2...25.4

100 s: (24.9...25.7)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 4.8...5.1
Del.quantity cm3/ : 1.8...2.3

100 s: (1.5...2.5)

cm3 : 0.5Spread 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

: 1.00...1.40 travel mm

rpm : 450 2nd speed

: 3.60...4.20 travel mm rpm : 800

3rd speed travel mm

: 6.30...6.70 rpm : 1070 4th speed

: 8.00...8.20 travel mm

: 1150 5th speed rpm : 9.30...9.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1090

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

Aneroid pressure h: 1200

: 252.0...254.0 Del.quantity

1000 : (249.0...257.0) cm3 : 5.00

Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 61...69

Testing:

1st rack travel in: 13.00

rpm : 1055...1065 Speed

2nd rack travel in: 4.00

rpm : 1140...1170 Speed

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever position degrees: 6...14

Testing:

(Pin : 100 Speed

Minimum rack trave: 6.40 rpm : 250

Rack travel in mm : 4.80...5.10

CONSTANT REGULATION

rpm : 250...400 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed CDM hPa : 1200 Pressure

: 14.00...14.10 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 10.00...10.20

2nd pressure hPa : 120 Rack travel in m: 10.20...10.30

3rd pressure hPa : 810

Rack travel in m: 13.30...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 700 Speed

Del.quantity cm3/: 163.0...165.0

1000 s: (160.0...168.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

rpm : 1055...1065 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 220.0...240.0

1000 s: (216.0...244.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 4.80...5.10

Del.quantity cm3/: 18.0...23.0 1000 s: (15.5...25.5) Spread cm3: 5.00

1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

Note remarks

Test sheet : VOL 12,2 d Edition : 29.11.91 Replaces : 22.3.91 Test oil : ISO-4113

Combination no. : 0 401 846 900

Injection pump

Pump designation : PE6P120A320RS3240 EP type number : 0 411 826 786

Governor

Governor design. : RQV250...1025PA921

-16

Governer no. : 0 421 813 799

Customer—spec. information

Customer : VOLVO-TRUCK.

Engine : TD122FL

1st version kW : 298.0 Rated speed : 2050

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-50-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 25.1...25.3

100 s: (24.8...25.6)

Spread cm3: 0.5

100 s: (0.9)

2nd speed rpm: 250.0 Rack travel in mm: 6.5...6.7 Del.quantity cm3/: 1.7...2.2

100 s: (1.5...2.5)

Spread cm3 : 0.5 100 s: (0.7)

(B) Setting of injection pump with governor

aren gorenne:

GUIDE SLEEVE TRAVEL

1st speed rpm : 250 travel mm : 1.00...1.40

2nd speed rpm : 450

travel mm : 3.60...4.20

3rd speed rpm : 800

travel mm : 6.30...6.70

4th speed rpm: 1070

travel mm : 8.00...8.20

5th speed rpm: 1150

travel mm : 9.30...9.70

GUIDE SLEEVE POSITION Control-lever position

Control-lever position
Degree: -1

Speed rpm: 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 700

M18

Aneroid pressure h: 1200

: 251.0...253.0 Del.quantity

1000 : (248.0...256.0)

: 5.00 cm3 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 116...124

Testing:

1st rack travel in: 12.60

rpm : 1065...1075 Speed

2nd rack travel in: 4.00

Speed rpm: 1140...1170 4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control Lever

position degrees: 60...68

Testing:

Speed : 100 man

Minimum rack trave: 8.10 rpm : 250

Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

rpm : 250...380 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 1200 Pressure

: 13.60...13.70 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.90...10.10

2nd pressure hPa : 90 Rack travel in m: 10.10...10.20

3rd pressure hPa : 800

Rack travel in m: 13.30...13.50

FUFL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 700 Speed

Del.quantity cm3/: 154.0...156.0

1000 s: (151.0...159.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.60

rpm : 1065...1075 Speed

STARTING FUEL DELIVERY

Speed rpm

Del.quantity cm3/: 270.0...310.0 1000 s: (266.0...314.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 6.50...6.70

Del.quantity cm3/: 17.5...22.5 1000 s: (15.0...25.0)

cm3 : 5.00Spread

1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90

Start-of-delivery setting with ROBO

diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : VOL 12,2 k : 29.11.91 Test sheet Edition : 23.10.91 Replaces : ISO-4113 Test oil Combination no. : 0 401 846 961 Injection pump Pump designation : PE6P12OA32ORS3292 : 0 411 826 804 EP type number Governor Governor design. : RQV300...1050PA1020 : 0 421 813 976 Governer no. Customer-spec. information Customer : VME : TD122 GH 3049 Engine : 207.0 1st version kW : 2100 Rated speed TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Openina .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.60...3.70 Prestroke mm : (3.55...3.75) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 20.5...20.7

100 s: (20.2...21.0)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 6.0...6.2 Del.quantity cm3/: 3.3...3.8 100 s: (3.0...4.0)

cm3 : 0.5Spread 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL rpm : 300 1st speed

: 1.30...1.70 travel mm 2nd speed rpm : 450

: 2.40...3.00 travel mm : 700 3rd speed rom 4.30...4.90

travel mm : 1100 4th speed rpm

: 7.80...8.00 travel mm : 1200

5th speed rpm : 8.80...9.20 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 Speed rpm : 1120 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 1200

: 205.0...207.0 Del.quantity 1000 : (202.0...210.0) : 5.00 cm3Spread 1000 : (9.00)PATED SPEED 1st version Control lever position degrees: 114...122 Testing: 1st rack travel in: 10.60 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 88...96 Testing: : 100 Speed rpm Minimum rack trave: 7.60 rpm : 300 Speed Rack travel in nm: 6.00...6.20 CONSTANT REGULATION rpm : 300...420 Speed TORQUE CONTROL Dimension a mm : 1.30 Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 11.60...11.70 rpm : 550 2nd speed Rack travel in m: 12.90...13.10 3rd speed rpm : 650 Rack travel in m: 12.60...12.80 Aneroid/Altitude Conpensator Test 1st version Setting

pm : 500 hPa : 1200 Speed man Pressure : 12.90...13.10 Rack travel mm Measurement

 $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 11.60...11.90 2nd pressure hPa : 530 Rack travel in m: 11.80...11.90 START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200 Speed rpm : 550
Del.quantity cm3/: 243.0...249.0
1(00 s: (240.0...252.0)

Aneroid pressure h: -Speed rpm : 550 Del.quantity cm3/: 208.0...210.0 1000 s: (205.0...213.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.60 rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 160.0...190.0 1000 s: (156.0...194.0) Rack travel in mm : 20.00...21.00

LOW IDLE

: 300 Speed rpm Rack travel in mm : 6.00...6.20

Del.quantity cm3/: 33.0...38.0 1000 s: (30.5...40.5)

cm3 : 5.00 Spread 1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm. Permissible alteration from 2.20...2.90

Note remarks

Test sheet

: DAF

Edition

: 30.04.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 401 846 964

Injection pump

Pump designation : PE6P110A320RS3302

EP type number

: 0 411 816 181

Governor

Governor design. : RQ300/1000PA1012-1

Governer no.

: 0 421 801 648

Customer-spec. information Customer

: DAF

Engine

: LT 195 L

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 101

Opening |

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test Lines

: 1 680 750 089

Outside diameter

x Wall thickness

x Length mm

: 8.00X2.50X600

(A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 14.00...15.00

M22

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 3.90...4.10

& maximum rack tra: 13.9...14.9

Difference * CS : 3.00...5.00

BASIC SETTING

1st speed

rpm: 850

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 17.3...17.5

100 s: (17.0...17.7)

Spread

cm3 : 0.4

100 s: (0.7)

rpm : 300.0 2nd speed

Rack travel in mm: 5.5...5.7

Del.quantity cm3/: 1.6...2.1

100 s: (1.4...2.4)

cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Spread

Spread

rpm : 850

Aneroid pressure h: 1000

Del.quantity

: 173.0...175.0

1000 : (170.5...177.5)

cm3

: 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

: 600 rpm

Rack travel in mm: 20.0

Testing:

Speed

1st rack travel in: 13.40

Speed rpm : 1025...1040 2nd rack travel in: 4.00

Speed rpm : 1105...1135 4th rack travel in: 1300

rpm : 0.00...1.50 Speed

LOW IDLE 1

Setting point w/out bumper spring

Libu Rack travel in mm: 5.6

Testing:

rpm : 100 Speed Minimum rack trave: 10.00

Speed rpm: 300
Rack travel in mm: 5.50...5.70
Rack travel in mm: 2.00
Speed rpm: 330...370

TORQUE CONTROL

Dimension a mm

Tarque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 15.10...15.20

2nd speed rpm : 1000

Rack travel in m: 15.00...15.20

Ameroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm hPa : 1000 Pressure

: 14.40...14.50 Rack travel mm

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : -

Rack travel in m: 12.30...12.50

2nd pressure hPa : 530

Rack travel in m: 13.90...14.00

3rd pressure hPa : 380

Rack travel in m: 12.90...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 600

Del.quantity cm3/: 131.0...133.0

1000 s: (128.5...135.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40

rpm : 1025...1040 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 330.0...370.0

1000 s: (327.0...373.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 16.5...21.5
1000 s: (14.0...24.0)

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet : MWM 17,6 b1 : 30.04.92 Edition

: 10.83 Replaces : ISO-4113 Test oil

Combination no. : 0 401 870 070

Injection pump

Pump designation : PE12P110A520/5RS4C8

EP type number : 0 411 810 039

Governor

: RSUV300...1150P0A324 Governor design.

: 0 421 831 908 Coverner no.

Customer spec. information Customer : MWM

: D,DT,TBD232V12 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

: 1 680 750 015 Test Lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm: 9.00...12.00

: 1- 12- 9- 4- 5- 8-Firing order

11-2-3-10-7-6

: 0-30-60-90-120-150-Phasing

180-210-240-270-300-

330

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 13.6...13.9

100 s: (13.3...14.1)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 300.02nd speed Rack travel in mm: 7.2...7.4 Del.quantity cm3/ : 2.3...2.9

100 s: (2.0...3.1)

cm3 : 0.4Spread 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm: 0.30...1.00

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

: 136.0...139.0 Del.quantity 1000 : (133.5...141.5)

: 4.00 cm3

Spread 1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 57...65

Testing:

1st rack travel *: 11.20

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

rpm : 1235...1265 Speed

4th rack travel in: 1400

: 0.30...1.70 Speed rom

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.8
Speed rpm : 300
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 320...380

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.20 Speed rpm : 1190...1200

Speed

Remarks:

Note remarks

Test sheet : LIE : 30.04.92 Edition

Replaces

Test oil : ISO-4113

: 0 401 876 791B Combination no.

Injection pump

Pump designation : PE6P110A320LS3859 : 0 411 816 784 EP type number

Governor

Governor design. : RSV400...900P1A554

: 0 421 833 376 Governer no.

: 9273092 Cust. part no.

Customer-spec. information : LIEBHERR Customer

: D 9306 TI Engine

: 230.0 1st version kW : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 089 Test lines

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.60...3.70 Prestroke mm

: (3.55...3.75)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-3-5-2-4 Firing order

: 0-75-120-195-240-315 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 900 1st speed

Rack travel in Lm : 14.50...14.60

Del.guantity cm3/: 19.5...19.7

100 s: (19.2...19.9)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 400.0 2nd speed Rack travel in mm: 5.9...6.1

Del.quantity cm3/: 1.2...1.7 100 s: (0.9...1.9)

cm3 : 0.4Spread

100 s: (0.7) GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed Aneroid pressure h: 1300

Del.quantity : (192.5...199.5)

: 4.00 cm3

Spread 1000 : (7.50)

RATED SPEED

1st version

Control lever position degrees: 96...102

Testing:

1st rack travel in: 13.50 rpm : 930...940 Speed 2nd rack travel in: 4.00 rpm : 980...1020 Speed 3rd rack travel in: 4.00 Speed rpm: 1020...1040 4th rack travel in: 1260 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 74...80 Setting point w/out bumper spring rpm : 400 Speed Rack travel in mm: 5.7 Speed rpm: 400
Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm : 450...510 Speed Aneroid/Altitude Compensator Test 1st version Setting rom : 550 hPa : 1300 Speed rpm Pressure : 14.50...14.60 Rack travel mm Measurement 1/min: 550 Speed 1st pressure hPa : -Rack travel in m: 13.70...13.80 2nd pressure hPa : 710 Rack travel in m: 14.00...14.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: rpm : 550 Speed Del.quantity cm3/: 177.5...179.5 1000 s: (175.0...182.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.50 rpm : 930...940 Speed

Del.quantity cm3/: 150.0...170.0 1000 s: (146.0...174.0) LOW IDLE rpm : 400 Speed Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 12.0...17.0 1000 s: (9.5...19.5) Spread cm3 : 4.50 1000 s: (7.50) Remarks:

STARTING FUEL DELIVERY

Speed rpm: 100

M27

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : FIA 7,7 b Edition : 30.04.92 : 10.91 Replaces Test oil : ISO-4113 : 0 402 046 343 Combination no. Injection pump Pump designation : PES6P120A720RS3275 : 0 412 026 745 EP type number Governor : RQV300...1100PA954-1 Governor design. : 0 421 815 273 Governer no. Customer—spec. information : IVECO-UNIC Customer : 8360.46.016 Engine TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 105 assembly **Opening** : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance $+ - \cdot : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 900 Rack travel in mm : 11.50...11.60 Del.quantity cm3/: 18.3...18.5 100 s: (18.0...18.8) cm3 : 0.5Spread 100 s: (0.9) rpm : 325.02nd speed Rack travel in mm : 4.2...4.6 Del.quantity cm3/ : 2.0...2.6 100 s: (1.7...2.9) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1145 1st speed : 10.60...10.80 travel mm rpm : 300 2nd speed : 1.00...1.40 travel mm : 850 3rd speed man : 6.60...7.00 travel mo rpm : 1350 4th speed : 13.00...14.00 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1150 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Speed Aneroid pressure h: 1000 : 183.0...185.0 Del.quantity 1000 : (180.0...188.0) : 5.00 Spread cm3 1000 : (9.00)

per values

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

: 3.50...3.60

: (3.45...3.65)

RATED SPEED

1st version Control Lever

position degrees: 115...123

Testina:

1st rack travel in: 10.10

rpm : 1170...1180 Speed

2nd rack travel in: 4.00 Speed rpm: 1225...1255

4th rack travel in: 1400

rom : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 73...81

Testing:

: 100 Speed COM Minimum rack trave: 5.90 : 325 rpm

Rack travel in mm : 4.30...4.50

CONSTANT REGULATION

rpm : 320...440 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 11.50...11.60

2nd speed rpm : 1100

Rack travel in m: 11.00...11.20 3rd speed rpm : 700 Rack travel in m: 10.90...11.10

: 350 4th speed rpm

Rack travel in m: 9.00...9.40

Aneroid/Altitude

Compensator Test

1st version

Setting

: 900 Speed man hPa : 1000 Pressure

: 11.50...11.60 Rack travel mm

Measurement

 $1/\min : 900$ Speed

1st pressure hPa : -

Rack travel in m: 8.40...8.60

2nd pressure hPa : 550 Rack travel in m: 10.40...10.50

3rd pressure hPa : 320

Rack travel in m: 9.10...9.30

START CUT-OUT

1/min : 275 (295) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

: 1100 Speed rpm

Del.quantity cm3/: 170.0...176.0 1000 s: (167.0...179.0)

Aneroid pressure h: 1000

: 700 Speed rom

Del.quantity cm3/: 164.0...170.0

1000 s: (161.0...173.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 95.0...97.0 1000 s: (92.0...100.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1170...1180 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 100.0...120.0 1000 s: (96.0...124.0)

LOW IDLE

Speed rpm: 325
Rack travel in mm: 4.20...4.60 Del.quantity cm3/: 20.0...26.0

1000 s: (17.0...29.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

: DEE 7,6 y 1 Test sheet : 30.04.92 : 08.90 Edition Replaces : ISO-4113 Test oil

: 0 402 076 722 Combination no.

Injection pump

Pump designation : PES6P120A720RS3203 : 0 412 026 728 EP type number

Governor

Governor design. : RSV400...1100P2A534

: 0 421 833 275 Governer no.

Customer-spec. information : JOHN DEERE Customer

: 6076 HF Engine

: 205.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.6

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x3.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 16.8...17.0

100 s: (16.6...17.2)

cm3 : 0.4Spread

100 s: (0.6)

rpm : 400.02nd speed Rack travel in mm : 5.2...5.4 Del.quantity cm3/: 2.0...2.4

100 s: (1.8...2.6)

cm3 : 0.6 Spread 100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 1200

Del.quantity : 100.0...172.0)

Spread cm3: 4.00

: (6.50) 1000

RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11.50 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 Speed rpm : 1185...1195 3rd rack travel in: 4.00 rpm : 1185...1215 Speed 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 12...20 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 4.8 Testing: : 100 Speed rom Minimum rack trave: 19.00 : 400 Speed rom Rack travel in mm : 4.70...4.90 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.50...12.60 nd speed rpm : 750 Rack travel in m: 13.00...13.20 2nd speed

Aneroid/Altitude Compensator Test

1st version Setting : 500 Speed rom hPa : Pressure

: 10.70...10.90 Rack travel mm

Measurement $1/\min : 500$ Speed

1st pressure hPa : 585 Rack travel in m: 11.10...11.20 2nd pressure hPa : 770

Rack travel in m: 12.20...12.60 3rd pressure hPa : 1200

Rack travel in m: 13.00...13.20

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200 rpm : 750 Del.quantity cm3/: 174.5...178.5 1000 s: (172.5...180.5)

Aneroid pressure h: rpm : 800 Speed

Del.quantity cm3/: 117.5...121.5 1000 s: (114.5...124.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50 rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 90.0...110.0 1000 s: (85.0...115.0) Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 400 Speed Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 20.0...24.0 1000 s: (18.0...26.0)

cm3 : 6.00Spread 1000 s: (8.00)

Remarks:

: JOHN DEERE # RE32035 Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control

spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

Note remarks

: DEE 10,1 g : 30.04.92 Test sheet Edition : 11.90 Replaces : ISO-4113 Test oil

Combination no. : 0 402 076 730

Injection pump

Pump designation : PES6P110A720RS3217 EP type number : 0 412 016 724

Governor

: RSV550...1050P2A534-Governor design.

: 0 421 833 304 Governer no.

Customer-spec. information : JOHN DEERE Customer

: 6619AT07 Engine

: 205.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 33...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 103 assembly

Openina

: 207...210 pressure, bar

Orifice plate

: 0,7 diameter mm

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

NO4

: 3.45...3.55 : (3.40...3.60) Prestroke mm

Rack travel in mm: 10.50

: 1-5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 12.10...12.20

Del.guantity cm3/: 18.3...18.5

100 s: (18.1...18.8)

cm3 : 0.4 Spread

100 s: (0.6)

rpm : 550.0 2nd speed Rack travel in mm: 5.2...5.4 Del.quantity cm3/: 3.3...3.7

100 s: (3.1...3.9)

cm3 : 0.6 100 s: (0.8) Spread

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800

Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 900

Del.quantity : 183.3....188.0)

: 4.00 cm3

1000 : (6.50)

RATED SPEED

Spread

1st version Control lever

position degrees: 41...49

Testina: 1st rack travel in: 11.10 nps : 1095...1105 Speed 2nd rack travel in: 4.00 rpm : 1180...1190 Speed 3rd rack travel in: 4.00 Speed rpm : 1195...1215 4th rack travel in: 1350 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 22...30 Setting point w/out bumper spring rpm : 550 Rack travel in mm: 4.8 Testing: Speed : 100 וחסרו Minimum rack trave: 19.00 Speed rpm : 550 Rack travel in mm : 5.20...5.40 Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed (POT) hPa : 900 Pressure : 12.10...12.20 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.60...10.80 2nd pressure hPa : 295 Rack travel in m: 11.00...11.10 3rd pressure hPa : 510 Rack travel in m: 11.70...12.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 167.0...171.0 1000 s: (165.0...173.0) **BREAKAWAY**

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 180.0...200.0 1000 s: (175.0...205.0) Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 550
Rack travel in mm : 5.20...5.40
Del.quantity cm3/: 33.0...37.0
1000 s: (31.0...39.0)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE36078

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

APPLICATION

Excavator

NO5

Speed

1st version

1mm rack travel less than

full load rack tr: 11.10

rpm : 1095...1105

Note remarks

Test sheet

: DEE

Edition

: 30.04.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 076 745

Injection pump

Pump designation : PES6P120A720RS3203

EP type number

: 0 412 026 728

Governor

Governor design.

: RSV625...1100P2A534-

Governer no.

: 0 421 833 372

Customer spec. information

Customer

: JOHN DEERE

Engine

: 6076 HZ 031

1st version kW

: 205.0

Rated speed

: 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 101

Openina |

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00X3.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

N06

: 3.55...3.65 : (3.50...3.70) Prestroke mm

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm: 12.70...12.80

Del.quantity cm3/: 17.4...17.6

100 s: (17.2...17.8)

cm3 : 0.4Spread

100 s: (0.6)

2nd speed rpm : 625.0 Rack travel in mm: 5.4...5.6 Del.quantity cm3/: 2.7...3.1 100 s: (2.5...3.3)

cm3 : 0.6Spread 100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 1200

cm3 : 4.00

Spread : (6.50) 1000

RATED SPEED

1st version Control lever

position degrees: 39...47

Testing: 1st rack travel in: 11.70 rpm : 1140...1150 Speed 2nd rack travel in: 4.60 Speed rpm : 1205...1215 3rd rack travel in: 4.00 Speed rpm : 1195...1225 4th rack travel in: 1350 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 22...30 Setting point w/out bumper spring Speed rpm : 625 Rack travel in mm: 5.0 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 625 Speed Rack travel in mm : 5.40...5.60 TORQUE CONTROL Torque control curve - 1st version 1st speed rom : 1100 Rack travel in m: 12.70...12.80 2nd speed rpm : 700 Rack travel in m: 13.40...13.60 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 1200 Pressure : 13.40...13.60 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 11.50...11.70 2nd pressure hPa : 645 Rack travel in m: 12.10...12.20 3rd pressure hPa : 840 Rack travel in m: 12.90...13.30 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200

: 700

: 800

1000 s: (185.0...193.0)

rpm Del.quantity cm3/: 187.0...191.0

rpm

Aneroid pressure h: -

Del.quantity cm3/: 143.0...147.0 1000 s: (141.0...149.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.70 rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 90.0...110.0 1000 s: (85.0...115.0) Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 625 Rack travel in mm : 5.40...5.60 Del.quantity cm3/: 27.0...31.0 1000 s: (25.0...33.0)

Spread cm3 : 6.001000 s: (8,00)

Remarks:

: JOHN DEERE # RE47399

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

NO7

Speed

Speed

Note remarks

: MB 22,0 c 2 : 30.04.92 Test sheet Edition : 06.91 Replaces : ISO-4113 Test oil

: 0 402 640 828 Combination no.

Injection pump

Pump designation : PE12P120A520LS7826 : 0 412 620 817 EP type number

Governor

: RQV350...1050PA870 Governor design.

-13

: 0 421 813 934 Governer no.

Customer-spec. information

: MERCDES-BENZ Customer

: OM 444 LA Engine

1st version kW : 620.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 067 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 4.40...4.50 : (4.35...4.55)

Rack travel in mm : 19.00...21.00 Firing order : 12-1-5-9-8-3-4-11-10-2-6-7

: 0-45-60-105-120-165-Phasing

180-225-240-285-300-

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 12

BASIC SETTING

rpm : 1050 1st speed

Rack travel in mm : 14.00...14.10

Del.quaritity cm3/: 27.4...27.6

100 s: (27.1...27.9)

cm3 : 0.6Spread

100 s: (1.0)

rpm : 350.0 2nd speed Rack travel in mm: 5.3...5.9

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

: 1.30...1.80 travel mm

rpm : 570 2nd speed

: 3.30...3.80 travel mm

3rd speed : 900 rpm

travel mm : 5.40...5.90

: 1107 4th speed rpm

: 7.80...8.30 travel mm

1204 5th speed rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1175 Speed

Rack travel in mm : 15.20...17.80

800

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 1800

: 274.0...276.0 Del.quantity

1000 : (271.0...279.0)

cm3Spread : 6.00 1000 : (10.00)

RATED SPEED

1st version

Control Lever

position degrees: 114...122

Testing:

1st rack travel in: 13.00

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1170...1200 Speed

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 59...67

Testing:

Speed rpm Minimum rack trave: 7.30 : 350 rpm

Rack travel in mm : 5.30...5.90

CONSTANT REGULATION

rpm : 350...690 Speed

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed COM hPa : -Pressure

: 8.20...8.50 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 300

Rack travel in m: 9.60...9.70 2nd pressure hPa : 1100

Rack travel in m: 13.80...14.10

START CUT-OUT

1/min: 310 (330) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800

Speed rpm : 750
Del.quantity cm3/: 271.0...275.0
1000 s: (268.0...278.0)

cm3 : 10.00

Spread

1000 s: (15.0)

Aneroid pressure h: -: 500 Speed rpm

Del.quantity cm3/: 124.0...126.0 1000 s: (121.0...129.0)

cm3 : 10.00 Spread

1000 s: (15.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 330.0...350.0 1000 s: (326.0...354.0)

Remarks:

N09

Note remarks

: STE 9,7 d Test sheet : 30.04.92 Edition : 09.86 Replaces : ISO-4113 Test oil

: 0 402 646 830 Combination no.

Injection pump

Pump designation : PE6P12DA72ORS7118 : 0 412 626 811

EP type number

Governor

Governor design. : RG300/1100PA784 : 0 421 801 337 Governer no.

Customer-spec. information Customer : STEYR

: WD615.68 Engine

1st version kW : 228.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm : (4.95...5.15)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 18.1...18.3

100 s: (17.8...18.6)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 4.5...4.7 Del.quantity cm3/: 1.5...2.1

100 s: (-) Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position Degree: -1

rpm : 600 Speed

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 1200

: 181.0...183.0 Del.quantity

1000 : (178.0...186.0)

: 5.00 cm3 Spread 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm: 15.8

Testing:

1st rack travel in: 11.70

mpan : 1145...1160 Speed

2nd rack travel in: 4.00

rpm : 1205...1235 Speed

4th rack travel in: 1300

rom : 0.00...1.00Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 4.6

Testing:

Speed : 100 rom Minimum rack trave: 6.00 : 300 rpm

Rack travel in mm : 4.50...4.70

Rack travel in mm : 2.00

rpm : 360...400 Speed

Aperoid/Altitude Compensator Test

1st version

Settina

: 500 Speed mgn hPa : 1200 Pressure

: 12.70...12.80 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.20...10.40

2nd pressure hPa : 570

Rack travel in m: 12.10...12.20

3rd pressure hPa : 360

Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

: 700 Speed rpm

Del.quantity cm3/: 190.0...196.0 1000 s: (187.0...199.0)

Aneroid pressure h: -

Speed rpm : 700 Del.quantity cm3/ : 143.0...145.0

1000 s: (140.0...148.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

Speed rpm : 1145...1160

N11

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity_cm3/ : 225.0...265.0

1000 s: (-)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : STE 9,7 d 1 : 30.04.92 Test sheet Edition : 09.86 Replaces : ISO-4113 Test oil Combination no. : 0 402 646 831 Injection pump Pump designation : PE6P120A720RS7118 : 0 412 626 811 EP type number Governor Governor design. : RQV250...1100PA785 : 0 421 813 517 Governer no. Customer-spec, information : STFYR Customer : WD615.68 Engine : 228.0 1st version kW Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening pressure, bar : 207...210 Orifice plate : 0,8 diameter mm : 1 680 750 067 Test lines Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 M12

: 5.00...5.10 Frestroke mm : (4.95...5.15) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - " : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1100 1st speed Rack travel in mm : 12.70...12.80 Del.quantity cm3/: 18.1...18.3 100 s: (17.8...18.6) cm3 : 0.5Spread 100 s: (0.9) rpm : 250.0 2nd speed Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 1.5...2.1 100 s: (-) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 250 : 1.20...1.30 travel mm 2nd speed rom : 350 : 1.80...2.20 travel mm 3rd speed rpm : 410 : 2.30...2.70 : 1150 travel mm 4th speed rpm : 8.40...8.60 travel mm : 1240 5th speed rpm : 9.50...9.80 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1150 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP

rpm : 1100

Aneroid pressure h: 1200

1st version

Speed

Del.quantity : 181.0...183.0 1000 : (178.0...186.0)

: 5.00 cm3 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 102...110

Testing:

1st rack travel in: 11.70

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1225...1255 Speed

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 68...76

Testing:

: 100 Speed rpm Minimum rack trave: 6.30 : 250 rom

Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

rpm : 275...375 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 1200 Pressure

: 12.70...12.80 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.30...10.40

2nd pressure hPa : 570

Rack travel in m: 12.10...12.20

3rd pressure hPa : 360

Rack travel in m: 10.80...11.00

START CUT-OUT

1/min: 170 (195) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

N13

Aneroid pressure h: 1200

rpm : 700 Speed Del.quantity cm3/: 190.0...196.0 1000 s: (187.0...199.0)

Aneroid pressure h: rpm_ : 700 Speed

Del.quantity cm3/: 143.0...145.0

1000 s: (140.0...148.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 225.0...265.0 1000 s: (221.0...269.0)

Rack travel in mm : 19.50...21.00

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

Note remarks

Test sheet : SCA 11.1 r Edition : 30.04.92 Raplaces : 05.91 Test oil : ISO-4113

Combination no. : 0 402 646 887

Injection pump

Pump designation : PE6P12OA72ORS7188 EP type number : 0 412 626 832

Governor

Governor design. : RQV200...950PA725-7

Governer no. : 0 421 813 803

Customer—spec. information Customer : SCANIA

Engine : DSC 11 23

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 104

Opening

pressure, bar : 250...253

Orifice plate

diameter mm : 0.7

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x wall interiess

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50 : (4.35...4.55)

Rack travel in mm : 9.00...12.00

47.

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 13.80...13.90

Del.guantity cm3/: 25.1...25.3

100 s: (24.8...25.6)

Spread cm3: 0.8

100 s: (1.2)

2nd speed rpm : 250.0 Rack travel in mm : 4.6...5.0 Del.quantity cm3/ : 1.4...2.0

100 s: (-)
Spread cm3 : 0.4
100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225 travel mm : 1.20...1.60

2nd speed rpm : 350 travel mm : 2.40...3.00

3rd speed rpm : 650

travel mm : 4.50...5.10

4th speed rpm: 1045

travel mm : 8.40...8.60

5th speed rpm: 1125

travel mm : 9.30...9.70

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 7.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700 Aneroid pressure h: 1500

Del.quantity : 251.0...253.0

1000 : (248.0...256.0)

N14

: 8.00 Spread cm3

1000 : (12.00)

RATED SPEED

1st version Control lever

position degrees: 110...118

Testing:

1st rack travel in: 12.80 Speed rpm : 990...1000 2nd rack travel in: 4.00

rpm : 1110...1140 Speed

4th rack travel in: 1250

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 60...68

Testing:

: 125 Speed **CDM** Minimum rack trave: 6.20 : 250 Speed nom

Rack travel in mm : 4.60...4.80

Rack travel in mm: 2.00 Speed rpm: 350...410

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed man hPa : 1500 Pressure

: 13.80...13.90 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 10.20...10.60

2nd pressure hPa : 440

Rack travel in m: 12.00...12.10 3rd pressure hPa : 270

Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

Speed rpm: 950 Del.quantity cm3/: 228.0...236.0 1000 s: (226.0...238.0)

Aneroid pressure h: -: 500 Speed COM

Del.quantity cm3/: 152.0...154.0 1000 s: (149.0...157.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80

rpm : 990...1000 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 150.0...180.0

1000 s: (-)

Rack travel in mm : 10.20...10.60

LOW IDLE

Speed rpm : 250 Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

Start-of-delivery setting with ROBO diaphragm.

APPLICATION

Navy

Note remarks

: MB 11,1 c Test sheet : 30.04.92 Edition : 01.92 Replaces : ISO-4113 Test oil

: 0 402 646 921 Combination no.

Injection pump

Pump designation : PE6P120A320LS7837-10

EP type number : D 412 626 855

Governor

: RQ300/1050PA972-3 Governor design.

: 0 421 801 565 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M441 LA Engine

: 250.C 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 23.4...23.6

100 s: (23.1...23.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm: 5.6...6.2

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6 Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 1000

: 234.0...236.0 Del.quantity 1000 : (231.0...239.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point: Speed : 600 rpm

Rack travel in mm: 20.0

Testing:

1st rack travel in: 13.90 Speed rpm : 1090...1105 2nd rack travel in: 4.00

Speed rpm: 1185...1215 4th rack travel in: 1300

Speed rom : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

rom Rack travel in mm: 5.9

Testing:

rpm : 200 Speed Minimum rack trave: 7.70

speed rpm : 300
Rack travel in mm : 5.60...6.20
Rack travel in mm : 2.00
Speed : 380...420 Speed rpm

TORQUE CONTROL

Dimension a mm :?

2nd speed rpm : 1050

Rack travel in m: 14.90...15.10

3rd speed rpm : 800

Rack travel in m: 15.50...15.70

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 600 rom hPa : 1000 Pressure

: 14.70...14.90 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : 200

Rack travel in m: 9.80...10.00 2nd pressure hPa : 600

Rack travel in m: 13.70...13.90

3rd pressure hPa : 1250

Rack travel in m: 14.80...15.00 *

4th pressure hPa : 1400

Rack travel in m: 15.20...15.40

5th pressure hPa : -

Rack travel in m: 9.10...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800 : 1050 Speed rom

Del.quantity cm3/: 235.0...238.0 1000 s: (232.0...241.0)

cm3 : 8.00 Spread

1000 s: (12.0) Aneroid pressure h: 1800

: 800 Speed rpm

Del.quantity cm3/: 248.0...252.0 1000 s: (245.0...255.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -Speed rom

Del.quantity cm3/: 135.0...137.0

1000 s: (132.0...140.0)

cm3 : 8.00Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90

rpm : 1090...1105 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 60.0...90.0 1000 s: (56.0...94.0)

Rack travel in mm : 9.10...9.40

Perarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

M7

Note remarks

: UNI 13,8 h2 Test sheet : 29.11.91 Edition

: 8.10.91 Replaces : ISO-4113 Test oil

: 0 402 646 947 Combination no.

Injection pump

Pump designation : PE6P130A720RS7225 EP type number : 0 412 636 817

Governor

: RQV300...950PA1002 Governor design.

-1K

: D 421 815 280 Governer no.

Customer—spec. information Customer : IVECO-UNIC

: 8210.42.400 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15)

Rack travel in mm : 13.50...14.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 950 1st speed

Rack travel in mm : 13.80...13.90

Del.quantity cm3/: 30.6...30.9

100 s: (30.2...31.2)

cm3 : 0.6Spread

100 s: (1.0)

rpm : 300.02nd speed Rack travel in mm: 4.8...5.2 Del.quantity cm3/: 1.9...2.5

100 s: (1.5...2.9)

cm3 : 1.0Spread 100 s: (1.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 995 1st speed

: 8.50...8.70 travel mm

rpm : 300 2nd speed

: 1.00...1.40 travel mm : 500 3rd speed rem

: 3.30...3.90 travel mm

: 750 4th speed rpm

: 5.80...6.20 travel mm

1300 5th speed rpm : 13.00...14.00

GUIDE SLEEVE POSITION

travel mm

Control-lever position

Degree: -1 rpm : 1125

Speed Rack travel in mm : 15,20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 950 Speed

Aneroid pressure h: 900

Del.quantity : 300.0...307.2 1000 : (302.5...312.5)

cm3 : 6.00 Spread 1000 : (10.00) RATED SPEED 1st version Control Lever position degrees: 112...120 Testing: 1st rack travel in: 12.80 rpm : 990...1000 Speed 2nd rack travel in: 4.00 : 1100...1130 Speed rpn 4th rack travel 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 66...74 Testina: rpm : 100 Speed Minimum rack trave: 6.50 Com Rack travel in mm: 4.90...5.10 CONSTANT REGULATION rpm : 340...460 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rom : 950 Rack travel in m: 13.80...13.90 : 750 2rd speed rem Rack cravel in m: 13.70...13.90 d speed rpm : 500 3rd speed Rack travel in m: 12.50...12.70 4th speed rpm : 300 Rack travel in m: 12.10...12.40 Aneroid/Altitude Compensator Test 1st version Setting : 950 Speed rpm hPa : 900 Pressure : 13.80...13.90 Rack travel mm Measurement 1/min: 950 Speed

Rack travel in m: 10.80...11.20 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 Speed rpm Del.quantity cm3/: 273.0...279.0 1000 s: (266.5...282.5) Aneroid pressure h: Speed rpm : 500 Del.quantity cm3/: 195.0...198.0 1000 s: (191.5...201.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.80 rpm : 990...1000 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 140.0...170.0 1000 s: (136.0...174.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 4.80...5.20 Del.quantity cm3/: 19.0...25.0 1000 s: (15.0...29.0) cm3 : 10.00Spread 1000 s: (14.00) Remarks: Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

N19

1st pressure hPa : -

Rack travel in m: 10.50...10.70 2nd pressure hPa : 560 Rack travel in m: 12.60...12.70 3rd pressure hPa : 350

Note remarks

Test sheet

30.04.92 Edition

Replaces

: ISO-4113 Test oil

Combination no.

: 0 402 646 976

Injection pump

Pump designation : PE6P12OA32OLS7846

EP type number

: 0 412 626 865

Governor

Governor design. : RQ300/1050PA1031

Governer no.

: 0 421 801 642

Customer-spec. information

Customer

: MERCEDES-BENZ

Engine

: 0M401 LA

1st version kW

: 230.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

: 0.6 diameter mm

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order

: 6-3-5-2-4-1

Phasing

: 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed

rpm: 700

Rack travel in mm : 13.70...13.90

Del.quantity cm3/: 22.9...23.1

100 s: (22.6...23.4)

Spread

cm3 : 0.5

100 s: (0.9)

rpm : 300.0

2nd speed Rack travel in mm : -

Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

Spread

cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000 Del.quantity

: 229.0...231.0

1000 : (226.0...234.0)

Spread cm3

: 5.00

1000 : (9.00)

RATED SPEED

1st version

Speed

Setting point:

rpm

: 600

Rack travel in mm: 20.0

N20

Testing: 1st rack travel in: 12.50 rpm : 1090...1105 Speed 2nd rack travel in: 4.00 rpm : 1165...1195 Speed 4th rack travel in: 1300 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.8 Testing: : 200 Speed rpm -Minimum rack trave: 9.00 rpm : 300 Speed Rack travel in mm : 6.50...7.10 Rack travel in mm: 2.00 rpm : 400...440 Speed TORQUE CONTROL Dimension a mm : 0.35 Torque control curve - 1st version 1st speed rpm: 1050 Rack travel in m: 13.40...13.60 2nd speed rpm : 850 Rack travel in m: 13.70...13.90 Aneroid/Altitude Compensator Test 1st version Setting : 700 Speed מוכרה Pressure hPa : -: 10.80...11.00 Rack travel mm Measurement 1/min: 700 Speed 1st pressure hPa : 300 Rack travel in m: 11.30...11.50 2nd pressure hPa : 700 Rack travel in m: 13.20...13.40 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000

Speed rpm : 1050 Del.quantity cm3/: 216.0...220.0

Aneroid pressure h: -

rom

cm3 : 8.00 1000 s: (12.0)

: 500

1000 s: (213.0...223.0)

Del.quantity cm3/: 124.0...126.0 1000 s: (121.0...129.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 12.50

rpm : 1090...1105 Speed

Remarks:

N21

Spread

Speed

Note remarks

Test sheet

: 30.04.92 Edition

Replaces

: ISO-4113 Test oil

: 0 402 646 978 Combination no.

Injection pump

Pump designation : PE6P12OA320LS7846

EP type number : 0 412 626 865

Governor

Governor design. : RQ300/950PA1031-1

: 0 421 801 643 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M401 LA Engine

: 230.0 1st version kW

: 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

: 1 680 750 075 Test lines

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00 ... 21.00 Firing order : 6-3-5-2-4-1

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 13.70...13.90

Del.quantity cm3/: 22.9...23.1

100 s: (22.6...23.4)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm : ? Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

cm3 : 0.6Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed Aneroid pressure h: 1000

: 229.0...231.0 Del.quantity 1000 : (226.0...234.0)

: 5.00 cm3 Spread

: (9.00) 1000

RATED SPEED

1st version

Setting point:

Speed

Rack travel in mm: 20.0

Testing: 1st rack travel in: 12.80 rpm : 990...1005 Speed 2nd rack travel in: 4.00 rpm : 1060...1090 Speed 4th rack travel in: 1300 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 6.8 Testing: : 200 Speed rpm Minimum rack trave: 9.00 rpm : 300 Speed Rack travel in mm : 6.50...7.10 Rack travel in mm : 2.00 ricm : 390...430 Speed Aneroid/Altitude Compensator Test 1st version Setting : 700 Speed man hPa : -Pressure Rack travel mm : 10.80...11.00 Measurement $1/\min : 700$ Speed 1st pressure hPa : 300 Rack travel in m: 11.30...11.50 2nd pressure hPa : 700 Rack travel in m: 13.20...13.40 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 : 950 Speed rpm Del.quantity cm3/: 226.0...230.9 1000 s: (223.0...233.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/: 124.0...126.0
1000 s: (121.0...129.0)
Spread cm3 : 8.00 1000 s: (12.0)

1st version 1mm rack travel less than

full load rack tr: 12.80 Speed rpm : 990...1005

Remarks:

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BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : PER 5,8 D Test sheet : 30.04.92 Edition : 03.92 Replaces : ISO-4113 Phasing Test oil : 0 403 444 119 Combination no. Injection pump Pump designation : PES4MW100/320RS1199 : 0 413 404 112 EP type number Governor Governor design. : RQV300...1300MW110K : 0 420 083 996 Governer no. Customer-spec. information Customer : PERKINS : 110 11 Engine : 82.0 Spread 1st version kW : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Spread Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Openina : 207...210 pressure, bar Orifice plate : 0,6 diameter mm : 1 680 750 008 Test Lines Outside diameter x Wall thickness : 6.00x2.00x600 Speed x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

: 3.30...3.40 Prestroke mm : (3.25...3.45) Rack travel in mm : 12.00...14.00 Firing order : 1-3-4-2 : 0-90-180-270 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1300 1st speed Rack travel in mm : 13.00...13.10 Del.quantity cm3/: 12.4...12.6 100 s: (12.2...12.8) cm3 : 0.3100 s: (0.6) rpm : 300.02nd speed Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1350 1st speed : 10.00...10.40 travel mm 2nd speed : 900 mgn : 6.40...6.60 travel mm 3rd speed : 480 rpm : 3.10...3.70 travel mm : 300 4th speed rpm : 1.40...1.80 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1380 Rack travel in mm: 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1300 Speed Aneroid pressure h: 900 Del.quantity : 124.0...126.0 Del.quantity : 124.0...128.0)

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Rack travel in m: 9.80...9.90 : 3.50 Spread cm3 2nd pressure hPa : 180 1000 : (6.00) Rack travel in m: 10.80...11.10 RATED SPEED 1st version START CUT-OUT Control lever position degrees: 116...124 Speed Testing: 1st rack travel in: 12.00 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1450...1480 4th rack travel in: 1550 1st version Speed rpm : 0.00...1.00 rom Speed LOW IDLE 1 Control lever position degrees: 66...74 Setting point w/out bumper spring Speed mc;rs rpm: Rack travel in mm: 6.2 Testing: rpm Speed : 200 Minimum rack trave: 7.50 BREAKAWAY : 300 rpm Speed Rack travel in mm : 6.10...6.30 1st version CONSTANT REGULATION rpm : 330...500 Speed Speed TORQUE CONTROL Torque control curve - 1st version st speed rpm : 1300 Rack travel in m: 13.00...13.10 1st speed rpm : 800 2nd speed Rack travel in m: 12.00...12.20 rpm : 500 3rd speed Rack travel in m: 10.30...10.50 4th speed rpm : 1000 Rack travel in m: 12.40...12.70 LOW IDLE 5th speed rpm : 400 Rack travel in m: 9.90...10.20 Aneroid/Altitude Compensator Test 1st version Remarks: Setting : 1300 Speed rpm hPa : Pressure : 9.60...9.70 Rack travel mm Measurement 1/min: 1300 Speed 1st pressure hPa : 130

3rd pressure hPa : 900 Rack travel in m: 13.00...13.10 1/min : 240 (250) FUEL DELIVERY CHARACTERISTICS Aneroid pressure h: 900 : 800 Del.quantity cm3/: 118.0...121.0 1000 s: (115.5...123.5) Spread cm3 : 5.00 1000 s: (7.0) Aneroid pressure h: -Del.quantity cm3/: 77.0...79.0 1000 s: (75.0...81.0) 1mm rack travel less than full load rack tr: 12.00 rpm:: 1340...1350 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 80.0...90.0 1000 s: (77.0...93.0) Rack travel in mm : 19.00...21.00 rpm : 300 Rack travel in mm : 6.10...6.30 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50) Start-of-delivery blocking 46.5° before start of delivery of cylinder 1

N25

Note remarks

: FIA 8,1 D : 18.09.91 Test sheet Edition : 06.91 Replaces : ISO-4113 Test oil

: 0 403 446 249 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1197

: 0 413 406 185 EP type number

Governor

Governor design. : PQV325...1350MW109K

: 0 420 083 997 Governer no.

Customer-spec, information : IVECO-FIAT Customer

: 8060.45.6000 Engine

: 169.0 1st version kW : 2700 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 4.00...4.10 Prestroke mm : (3.95...4.15)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1350 1st speed

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 10.0...10.2

100 s: (9.8...10.4)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 325.0 2nd speed Rack travel in mm: 7.7...7.9

Del.quantity cm3/: 2.5...2.9 100 s: (2.2...3.1)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1400 1st speed

: 10.00...10.40 travel mm

2nd speed : 825 ron

: 4.90...5.10 travel mm

: 400 3rd speed rom

: 2.90...3.50 : 325 travel mm

4th speed rpm

: 1.50...1.90 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1350 Speed Aneroid pressure h: 850

: 100.0...102.0 Del.quantity

1000 : (98.0...104.0)

: 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing: 1st rack travel in: 13.00 rpm : 1410...1420 Speed 2nd rack travel in: 4.00 Speed rpm : 1515...1545 4th rack travel in: 1600 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 78...86 Setting point w/out bumper spring Speed rpm Rack travel in mm: 7.8 Testina: rpm Speed Minimum rack trave: 10.00 Speed rpm : 325 Rack travel in mm : 7.70...7.90 TORQUE CONTROL Torque control curve - 1st version rpm : 1350 1st speed Rack travel in m: 14.00...14.10 and speed rpm : 1200 Rack travel in m: 13.60...13.80 2nd speed rpm : 1000 3rd speed Rack travel in m: 13.20...13.50 4th speed rpm : 700 Rack travel in m: 13.30...13.50 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : ~ : 11.20...11.30 Rack travel mm Measurement 1/min : 500 Speed 1st pressure hPa : 450 Rack travel in m: 11.70...11.80 2nd pressure hPa : 650 Rack travel in m: 12.80...13.10 3rd pressure hPa : 850 Rack travel in m: 13.30...13.50 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 850

rpm : 1200

Del.quantity cm3/: 100.0...103.0 1000 s: (97.5...105.5) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: 850 : 1000 Speed rpm Del.quantity cm3/: 100.5...103.5 1000 s: (98.0...106.0) Aneroid pressure h: 850 Speed rpm : 700 Del.quantity cm3/: 101.5...104.5 1000 s: (99.0...107.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 77.5...79.5 1000 s: (75.5...81.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.00 rpm : 1410...1420 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 65.0...85.0 1000 s: (62.0...88.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 7.70...7.90
Del.quantity cm3/ : 25.0...29.0
1000 s: (22.5...31.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Speed